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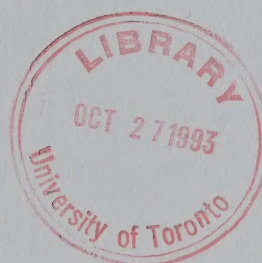
National Energy Board

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Reasons for Decision


TransCanada PipeLines Limited

GH-2-93



September 1993

Facilities



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National Energy Board

Reasons for Decision

TransCanada PipeLines Limited

Application dated 18 December 1992,
as amended 23 March and 28 May 1993
for 1994 and 1995 Facilities

GH-2-93

September 1993

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Abbreviations

Act	<i>National Energy Board Act</i>
ANR	ANR Pipeline Company
APMC	Alberta Petroleum Marketing Commission
Bcf	billion cubic feet
Board	National Energy Board
Centra Ontario	Centra Gas Ontario Inc.
Consolidated Edison	Consolidated Edison Company of New York, Inc.
Consumers' Gas	Consumers' Gas Company Ltd., The
Crestar	Crestar Energy Inc.
CWS	Canadian Wildlife Services
dB(A)	decibels ('A' weighted)
DFO	Department of Fisheries and Oceans
DLN	dry, low NO _x
DOE/FE	(U.S.) Department of Energy/Office of Fossil Energy
EARP Guidelines Order	Environmental Assessment and Review Process Guidelines Order
Eastern Canada	Manitoba, Ontario and Quebec
EIL	Environmental Issues List
EJ	exajoule(s)
Empire	Empire State Pipeline Company, Inc.
Enron	Enron Gas Marketing Inc.
Enron Corp.	Enron Gas Services Corporation

EPN	Early Publication Notification
ERCB	(Alberta) Energy Resources Conservation Board
ESA	Environmentally Sensitive Area
FERC	(U.S.) Federal Energy Regulatory Commission
FS	Firm Service
FST	Firm Service Tendered
GH-2-87	Hearing Order GH-2-87 in respect of TransCanada's application for 1988 and 1989 facilities and approval of its toll methodology and related tariff matters
GH-1-89	Hearing Order GH-1-89 in respect of TransCanada's application for 1990 facilities and various applications for natural gas export licences
GHW-3-89	Hearing Order GHW-3-89 in respect of information on gas supply to be provided by TransCanada in support of its 1991 and 1992 facilities
GH-5-89	Hearing Order GH-5-89 in respect of TransCanada's application for 1991 and 1992 facilities and various applications for natural gas export licences
GH-4-91	Hearing Order GH-4-91 in respect of TransCanada's application for 1992-93 facilities
GH-R-1-92	Hearing Order GH-R-1-92 in respect of a review of NEB Decision GH-1-91 respecting TransCanada's application for the Blackhorse Extension
GH-4-92	Hearing Order GH-4-92 in respect of TransCanada's application for 1993-94 facilities
GH-5-92	Hearing Order GH-5-92 in respect of various applications for natural gas export licences
GH-7-92	Hearing Order GH-7-92 in respect of various applications for natural gas export licences
GLGT	Great Lakes Gas Transmission Limited Partnership
GPUAR	Gas Pipeline Uniform Accounting Regulations

GRI	Gas Research Institute
ha	hectare(s)
km	kilometre(s)
kp	kilometre post
kPa	kiloPascals
LDC(s)	local distribution company(ies)
m	metre(s)
MLV	mainline valve
MMcf	million cubic feet
MMcfd	million cubic feet per day
MW	megawatts
NEB	National Energy Board
NIMO	Niagara Mohawk Power Corporation
Nordic Power	Nordic Power of Windsor Partnership
Northstar	Northstar Energy Corporation
NOVA	NOVA Corporation of Alberta
NO _x	oxides of nitrogen
NUG	non-utility generation
NYPSC	New York State Public Service Commission
NYSEG	New York State Electric & Gas Corporation
Ocelot	Ocelot Energy Inc.
OEB	Ontario Energy Board
OMNR	Ontario Ministry of Natural Resources
OPCC	Ontario Pipeline Coordination Committee

Panhandle	Panhandle Eastern Pipe Line Company
Potter	Potter Station Power Co. Ltd.
ppmv	parts per million (volumetric)
PPBR	Plans, Profiles and Books of Reference
psig	pounds per square inch (gauge)
PURPA	(U.S.) Public Utilities Regulatory Policies Act
RG&E	Rochester Gas & Electric Corporation
QF	Qualifying Facility
SERM	Saskatchewan Environment and Resource Management
Sithe	Sithe/Independence Power Partners, L.P.
Sproule	Sproule Associates Limited
STS	Storage Transportation Service
Summit	Summit Resources Limited
Tcf	trillion cubic feet
the assessments	environmental and socio-economic assessment reports
TransCanada	TransCanada PipeLines Limited
TransGas	TransGas Limited
U.S.	United States of America
Union	Union Gas Limited
WCSB	Western Canada Sedimentary Basin
WEFA	The WEFA Group
Wes Cana	Wes Cana Energy Marketing Inc.
WGML	Western Gas Marketing Ltd.
10 ³ m ³ /d	thousand cubic metres per day

Recital and Appearances

IN THE MATTER OF the *National Energy Board Act* and the Regulations made thereunder;

AND IN THE MATTER OF an application by TransCanada PipeLines Limited ("TransCanada") for a Certificate of Public Convenience and Necessity under Part III of the Act authorizing the installation of additional facilities;

AND IN THE MATTER OF an Application by TransCanada for an Order under Part IV of the Act respecting the accounting treatment for the retirement of certain facilities;

AND IN THE MATTER OF an Application by TransCanada pursuant to Condition 3(2) of Order XG-23-92 for a variation to the specifications of certain of the pipe to be used for the Blackhorse Extension and to allow for an upgrade to the Chippawa Meter Station;

AND IN THE MATTER OF an Application by TransCanada pursuant to Section 9.3.1 of the Board's Reasons for Decision in GH-2-87 for approval to enter into assignments of certain long-term transportation contracts;

AND IN THE MATTER OF the National Energy Board Hearing Order GH-2-93;

HEARD in Toronto, Ontario on 21, 22, 23 and 25 June 1993.

BEFORE:

A. Côté-Verhaaf	Presiding Member
C. Bélanger	Member
K.W. Vollman	Member

APPEARANCES:

J.M. Murray	TransCanada PipeLines Limited
M.S. Forster	M.J. Samuel
P.L. Fournier	Canadian Association of Petroleum Producers
R.G. Pepper	Alberta and Southern Gas Co. Ltd.
T.G. Kane	ANR Pipeline Company
R.B. Brander	Centra Gas Ontario Inc.
H.T. Soudek	Consumers' Gas Company Ltd., The

L.E. Smith	Enron Gas Marketing, Enron Power Services and Sithe/Independence Power Partners; New York State Electric & Gas Corporation; Northeast Group; and Vermont Gas Systems Inc.
J.S. Bulger	Gaz Métropolitain, inc.
L.G. Keough	Midland Cogeneration Venture and Northland Power
N. M. Gretener	Potter Station Power Co. Ltd.
P. Gilchrist	Nordic Power of Windsor Partnership
N. Wells	NOVA Corporation of Alberta
M.A.K. Muir	ProGas Ltd.
S.W. Widger, Jr.	Rochester Gas & Electric Corporation
N.J. Schultz	Tennessee Gas Pipeline Company
G.A. Cameron	Union Gas Limited
W.M. Moreland	Alberta Petroleum Marketing Commission
V.J. Black	Minister of Environment and Energy for Ontario
J. Turchin	
R. Ménard	Procureur général du Québec
J. Hanebury	National Energy Board

Overview

(Note: This overview is provided solely for the convenience of the reader and does not constitute part of this Decision or the Reasons, to which readers are referred for detailed text and tables.)

The Application

By application dated 18 December 1992, as amended on 23 March and 28 May 1993, TransCanada PipeLines Limited applied for a certificate, pursuant to Part III of the *National Energy Board Act*, to expand its natural gas pipeline system in western and central Canada for the contract year commencing 1 November 1994.

TransCanada sought authorization to construct 164.4 kilometres of new pipeline loop across the system and to install 129.0 megawatts of new compression at an estimated capital cost of \$397.3 million (\$1993). The proposed expansion would allow TransCanada to provide a total of 2 031 $10^3\text{m}^3/\text{d}$ (71.8 MMcfd) of new long-haul firm service, of which 943 $10^3\text{m}^3/\text{d}$ (33.4 MMcfd) would be for domestic service and the remaining 1 088 $10^3\text{m}^3/\text{d}$ (38.4 MMcfd) would be for two new export services. In addition, the proposed expansion would provide a total of 5 988 $10^3\text{m}^3/\text{d}$ (211.4 MMcfd) of new short-haul firm service for export customers. TransCanada also requested an order under Part IV respecting the accounting treatment for the retirement of two compressor units, a variation to an existing Board Order respecting the Blackhorse Extension, and approval to enter into assignments of two Union Gas Limited M12 transportation contracts.

Highlights of the Board's Decision

The Board is satisfied that the applied-for facilities are required by the present and future public convenience and necessity and is prepared to issue a certificate subject to the approval of the Governor in Council. The Board determined that the proposed expansion was economically feasible, given that there was a likelihood that the facilities would be used at a reasonable level over their economic life and that demand charges would be paid. The Board's certificate will include conditions to ensure that only those facilities needed to meet the aggregate firm service requirements will be built, and that construction will occur in an acceptable technical and environmental manner.

The Board also approved TransCanada's request to treat the retirement of compressor units 9002 and 127"A" as ordinary retirements pursuant to Section 39 of the *Gas Uniform Accounting Regulations*. The Board approved a variation to existing Board Order XG-23-92 respecting the facilities specification for the Chippawa Channel crossing portion of the Blackhorse Extension to accommodate an increase in the maximum allowable operating pressure of the line from 6 825 kPa (1000 psig) to 9 925 kPa (1440 psig). The Board also issued Orders XG-T1-29-93 and XG-T1-36-93, approving two additional meter runs for the Chippawa Meter Station and manifolding for the proposed Douglastown Compressor Station, respectively, prior to the release of these Reasons for Decision. Finally, the Board also authorized TransCanada to enter into assignments of two Union Gas Limited M12 transportation contracts.

Environmental Screening

The Board conducted an environmental screening of the applied-for facilities in compliance with the *Environmental Assessment and Review Process Guidelines Order* insofar as there was no duplication with the Board's own regulatory process. The Board determined that the potential adverse environmental effects, including the social effects directly related to those environmental effects which may be caused by the proposal, would be insignificant or mitigable with known technology.

Introduction

1.1 The Facilities Application

By application dated 18 December 1992, as amended on 23 March and 28 May 1993, TransCanada PipeLines Limited ("TransCanada") sought a certificate, pursuant to Part III of the *National Energy Board Act* ("the Act"), to expand its natural gas pipeline system in western and central Canada in order to meet domestic and export requirements for the contract year commencing 1 November 1994.

The proposed expansion would enable TransCanada to:

- meet projected requirements under existing contracts after accounting for contract revisions, precedent agreement terminations and the continuation of services starting during the summer of 1994;
- pay back during the 1994-95 winter season capacity borrowed in the summer of 1992;
- provide a total of $2\,031\,10^3\text{ m}^3/\text{d}$ (71.8 MMcfd) of new long-haul Firm Service ("FS") deliveries from Empress, of which $943\,10^3\text{ m}^3/\text{d}$ (33.4 MMcfd) or 46 percent would be for customers in Canada and the remaining $1\,088\,10^3\text{ m}^3/\text{d}$ (38.4 MMcfd) or 54 percent would be for service to export customers;
- provide a total of $5\,988\,10^3\text{ m}^3/\text{d}$ (211.4 MMcfd) of new short-haul FS deliveries to Chippawa, Ontario for service to export customers;
- restore the capability that would be lost due to the proposed retirement of one permanent compressor unit at Station 127 and one portable compressor unit at Station 99; and
- provide a delivery pressure of 9 925 kPa (1440 psig) at Chippawa to Empire State Pipeline.

The proposed facilities consist of 164.4 kilometres ("km") of new pipeline loop across the system, 129.0 megawatts ("MW") of compression equipment, two aftercoolers, one meter station and compression related items including aero assemblies and standby plants, at an estimated capital cost of \$397.3 million. TransCanada estimated that the proposed facilities would result in an increase in the Eastern Zone toll of approximately 1.2¢/gigajoule relative to tolls without the expansion.

TransCanada also applied, pursuant to Condition 3(2) of the Board's Order XG-23-92, for a variation to the specifications of the Chippawa Meter Station and pipe and associated facilities to be used for the Blackhorse Extension downstream of the proposed Douglastown Compressor Station.

In addition TransCanada requested an order, under Part IV of the Act, to treat the retirement of compressor unit 127"A" at Station 127 and the portable unit at Station 99 as "ordinary" retirements under the *Gas Pipeline Uniform Accounting Regulations*.

TransCanada also applied for approval to enter into assignments of two Union Gas Limited ("Union") M12 Transportation Contracts.

1.2 Environmental Screening

The National Energy Board (the "Board") conducted an environmental screening of the applied-for facilities in compliance with the *Environmental Assessment and Review Process Guidelines Order* ("the EARP Guidelines Order") insofar as there was no duplication with the Board's own regulatory process.

The new meter station (addition of metering facilities to an existing compressor station) and the aero assemblies are proposals of the type identified by the list established pursuant to paragraph 11(a) of the EARP Guidelines Order, and accordingly are excluded from further assessment under the EARP Guidelines Order.

The potentially adverse environmental effects that may be caused by the remaining applied-for facilities and the social effects directly related to those environmental effects are insignificant or mitigable with known technology. This conclusion represents a finding pursuant to paragraph 12(c) of the EARP Guidelines Order. The Board's views in respect of the environmental effects and directly-related social effects of the applied-for facilities are set out in Chapter 5 of these Reasons for Decision.

Overall Gas Supply/Demand

2.1 Overall Gas Supply

TransCanada relied upon a study prepared by Sproule Associates Limited ("Sproule") entitled "The Future Natural Gas Supply Capability of the Western Canada Sedimentary Basin 1992-2012" as evidence of overall gas supply. This study is an update of four previous studies prepared by Sproule for TransCanada for the GH-1-89, GH-5-89, GH-4-91 and GH-4-92 facilities proceedings.

Sproule's Gas Supply Capability Model essentially tests the capability of the Western Canada Sedimentary Basin ("WCSB") to respond to an imposed level of gas demand. The demand forecast and associated price were provided to Sproule by TransCanada. Sproule concluded that the WCSB could support increasing levels of natural gas deliverability to at least $167 \times 10^9 \text{ m}^3$ (5.9 Tcf) per year through to 2006 after which capacity from conventional sources would decline. TransCanada argued that this represented a reasonable expectation for all demands on the basin. Sproule also provided an update on unconventional gas and stated its belief that coalbed methane will provide an economic supplement to conventional supplies of natural gas within 10 to 15 years.

As was the case in previous hearings, the Sproule estimate of supply capability is higher than the Board's estimate. TransCanada noted that the Board has expressed concerns with the Sproule estimate in previous hearings and in each case TransCanada has tried to address those concerns in subsequent hearings. The net effect of the studies and sensitivities undertaken has been to reinforce TransCanada's view that the model gives a conservative estimate of reserves additions.

No intervenor expressed concerns about Sproule's estimate of supply capability.

Views of the Board

The Board is of the view that the supply capability of the WCSB projected by the Sproule model is at the upper end of a plausible range of estimates of future gas supply capability. Recognizing the uncertainty inherent in such forecasts and that the demand forecast provided to Sproule by TransCanada and projected for the basin is above the demand levels that will eventuate from this expansion, the Board is satisfied that TransCanada has demonstrated that there will be adequate overall gas supply to ensure sufficient long-term utilization of TransCanada's system, including the proposed facilities. However, in the interests of encouraging further development of the Sproule model the Board believes it would be useful to point out in some detail the three primary concerns it has regarding the results produced by the model.

The Board's first concern is with the forecast of high levels of drilling (6 million metres for gas alone) even though the producers' rates of return were forecast to be relatively low at 6 to 8 percent. The Board was not totally persuaded by Sproule's testimony that these apparent low rates of return are offset by conservatism built into various elements of the model, especially in the areas of costs and average well capability.

Secondly, the Board has reservations about the quantity of gas that Sproule believes can be produced from unconnected reserves. The viability of the unconnected reserves base could, for example, be overestimated because of remoteness, sulphur content, age of the discoveries and incomplete well test data. In light of the importance of this assumption to the model's predictive capability, the Board suggests that TransCanada investigate the viability of the unconnected reserves base prior to its next update of the study.

Finally, Sproule's methodology for estimating future reserves additions results in an inferred ultimate potential of 325 EJ (307 Tcf), compared with the Board's estimate of 250 EJ (237 Tcf) for the WCSB. The NEB estimate is consistent with the Alberta Energy Resources Conservation Board's ("ERCB") most likely estimate for Alberta alone of 210 EJ (200 Tcf).

During this proceeding, both TransCanada and Sproule referred to a major new study on the WCSB ultimate potential and supply capability. The Board understands that this study will include significant enhancements to the methodology relied upon, such as a new reserves additions equation, and that it will use the ERCB's Report 92A¹ as the basis for the ultimate potential natural gas reserves. The Board is pleased to learn that this work is being undertaken and anticipates an early review of the study's assumptions and results. The Board trusts that this new work will address the Board's concerns as well as addressing the key elements of uncertainty prevalent in this type of forecasting.

2.2 Long-Term Domestic Markets

TransCanada projects that Eastern Canadian natural gas demand will grow at an average rate of 1.9 percent per year over the forecast period, increasing from 1196 petajoules in 1992 to 1683 petajoules in 2010. TransCanada submitted that since the projected growth exceeds the current projected contract deliveries throughout the TransCanada system, additional capacity on TransCanada's system and/or additional imports will be required. TransCanada cited the willingness of its customers to enter into long-term contracts as an indication that its transportation services will remain competitive vis-à-vis potential imports.

Views of the Board

The Board considers the assumptions that underlie TransCanada's projections of natural gas consumption for Eastern Canada to be within reasonable limits. Therefore, for the purpose of this application, the Board finds TransCanada's overall outlook for natural gas demand in Eastern Canada to be reasonable. The Board also notes that no party took issue with TransCanada's evidence regarding its ability to compete with natural gas delivered by other pipeline systems.

2.3 Long-Term Export Markets

In order to demonstrate the long-term nature of natural gas demand in both the U.S. Northeast and Midwest markets, TransCanada presented forecasts by the Gas Research Institute ("GRI") and the WEFA Group ("WEFA"), among others. According to these sources, annual growth rates for natural gas demand over the forecast period 1995 to 2010 will range between 0.0 and 1.0 percent in the U.S.

¹ Ultimate Potential and Supply of Natural Gas in Alberta, ERCB June 1992 (Report 92A).

Midwest, and between 0.8 and 1.3 percent in the U.S. Northeast, indicating a long-term need for natural gas in the export markets served by TransCanada. TransCanada cited the willingness of its customers to enter into long-term service contracts with TransCanada as an indication that its transportation services are expected to remain competitive in the export markets it serves.

Views of the Board

The Board accepts the evidence presented which indicates that the long-term outlook for natural gas use in the U.S. Northeast and Midwest is for increased sales. The Board also notes that no party took issue with TransCanada's evidence regarding the ability of Canadian-sourced gas to compete effectively with other gas supplies for U.S. Northeast and Midwest markets.

Specific Transportation Services

Requirements

The capacity to be provided by the applied-for facilities is, among other things, intended to allow TransCanada to satisfy projected requirements under existing transportation service contracts and new firm domestic and export service requirements.

3.1 TransCanada's Requirements Forecast

TransCanada provided forecast requirements for the contract years commencing 1 November 1992, 1993, 1994, and 1995 (refer to Table 3-1). The forecast was provided for each firm service shipper in terms of winter maximum daily demand, summer and winter seasonal demand, and estimated annual deliveries.

Table 3-1

TransCanada's Forecast of Annual Deliveries^{1 2}

<u>Contract Year</u>	<u>Domestic</u>		<u>Export</u>		<u>Total</u>	
	(10 ⁹ m ³)	(Bcf)	(10 ⁹ m ³)	(Bcf)	(10 ⁹ m ³)	(Bcf)
1992-93 ³	32.1	1 133	27.0	953	59.1	2 086
1993-94	32.4	1 144	29.4	1 038	61.8	2 182
1994-95	33.2	1 172	32.4	1 144	65.6	2 316
1995-96	33.4	1 179	32.3	1 140	65.7	2 319

¹ Source: TransCanada's "1994-95 Facilities Application", Tab "Requirements, Sub-tab 1, revised 28 May 1993.

² Includes FST, STS, and WGML and CanStates Gas Marketing "Payback Volumes", but excludes all fuel requirements, losses and other uses. With respect to the "Payback Volumes", refer to the Board's Reasons for Decision in RH-2-92, TransCanada PipeLines Limited, February 1993, Chapter 10, "The Loan of Transportation Capacity".

³ Includes actual volumes from 1 November 1992 to 31 March 1993.

TransCanada indicated that its forecast of deliveries is based upon its existing transportation service contracts and upon executed or anticipated precedent agreements with prospective shippers. TransCanada's forecast of seasonal load factors and volumes is based upon the results of a questionnaire and upon discussions with current and prospective shippers. TransCanada's export forecast assumes that existing export licences and contracts will be extended upon their current expiry dates.

TransCanada's questionnaire, which was sent to both domestic and export shippers and domestic end users whose contracted daily demand exceeds $50.0 \times 10^3 \text{ m}^3$ (1.8 MMcf), asked each respondent to provide: a forecast of gas supply by source; a forecast of gas demand by market and delivery point; anticipated use of diversions, storage, and U.S.-sourced gas supply; the potential impacts associated with inter-fuel competition and the availability of alternative gas supplies; and any possible de-contracting or non-renewal of contracts. TransCanada indicated that the current questionnaire contains a more detailed gas supply section which requests information on the terms of the gas supply arrangements and a description of those factors that support the respondent's belief that the gas supply will be available to its market over the term of the transportation service contract and beyond. TransCanada noted that the gas supply contract terms are generally congruent with the terms of the shipper's TransCanada transportation service contract.

Based on the results of its questionnaires, TransCanada is continuing to forecast high FS contract utilization. Table 3-2 provides a comparison of the historical and forecast relationships between winter and summer season and the average annual load factor utilization. TransCanada noted that its summer load factor utilization of FS contracted volumes is forecast to increase from 91 percent in 1991/92 to 97 percent in 1993/94 and beyond, whereas the average annual load factor utilization of FS contracted volumes is forecast to increase from 92 percent to 98 percent over the same time period. Winter load factor utilization of FS contracted volumes is forecast to reach 100 percent by the 1993/94 contract year.

TransCanada indicated that the steady trend toward a higher and a more evenly distributed load factor utilization of FS contracts is the result of the increasingly greater flexibility afforded shippers through such services as diversions, assignments and storage. TransCanada added that most of the shippers surveyed indicated that they will continue to maximize the use of their FS contracts in order to minimize their exposure to unabsorbed demand charges and/or to access discretionary markets offering the highest return.

TransCanada explained that there is strong evidence that the recent trend toward higher FS contract utilization will continue, notwithstanding reduced NOVA deliveries at Empress, Alberta this past winter which resulted in reduced use of the TransCanada FS contracts. TransCanada believes that these shortfalls, combined with higher gas prices, should result in increased drilling activities and/or in the development of Alberta storage. However, peak demand in ex-Alberta markets may coincide with peak Alberta demand in the 1993/94 contract year. TransCanada submitted that any shortfalls which may result will be alleviated by shippers accessing other gas supply sources to meet primary market demand. TransCanada noted that, while its shippers acknowledged that uncertainties exist, including those associated with the U.S. Federal Energy Regulatory Commission ("FERC") Order 636, none of its shippers have reduced their forecast load factor.

Table 3-2

TransCanada
FS Contract Utilization
(As a Percentage of Contract Day)

<u>Contract Year</u>	<u>Winter</u>	<u>Summer</u>	<u>Average Annual</u>
<u>Historical</u>			
1987-88	92	57	71
1990-91	92	84	87
1991-92	93	91	92
<u>Forecast</u>			
1993-94	100	97	98

Compared to the requirements forecast filed by TransCanada in its June 1992 revision to its 1993/94 Facilities Application, TransCanada's 1993/94 base case⁴ winter daily requirements were adjusted downward by some 3 800 10³m³/d (134.1 MMcfd) reflecting in part: the non-renewal of contracted capacity; requested contract revisions or restructuring; termination of precedent agreements; and the delay of service to a subsequent contract year. For example, TransCanada noted that Western Gas Marketing Limited ("WGML") has advised that it does not intend to renew 1 416.0 10³m³/d (50.0 MMcfd) of its contracted transportation capacity to Emerson, Manitoba, effective 1 November 1993. Similarly, the two Indeck Gas Supply Corp. (Corinth and Ilion) services totalling 684.0 10³m³/d (24.1 MMcfd) and the L&J Energy System Inc. service for 331.0 10³m³/d (11.7 MMcfd) have been removed from the base case requirements forecast, commencing 1 November 1993, reflecting the termination of the associated precedent agreements. Two services, JMC Selkirk Cogen Partners, L.P. and Kamine\Beaver Falls L.P., totalling 1 062.3 10³m³/d (37.5 MMcfd) have delayed commencement of service to the 1994/95 contract year.

In addition, annual deliveries in the 1993/94 contract year reflect 218.0 10⁶m³ (7.7 Bcf) of demand associated with the payback of capacity borrowed by TransCanada in the summer of 1992 from The Consumers' Gas Company Limited ("Consumers' Gas"), WGML and Union Gas Limited ("Union").⁵ However, TransCanada explained that it will have small amounts of excess capacity under winter peak day and winter season conditions to facilitate any payback volumes. Therefore, TransCanada is not proposing to construct additional facilities to accommodate the payback of the borrowed capacity.

⁴ Base case requirements refer to those transportation services which are currently available or for which the facilities necessary to enable the service to commence have been certified.

⁵ Refer to NEB Reasons for Decision in RH-2-92, TransCanada PipeLines Limited, February 1993, Chapter 10 "The Loan of Transportation Capacity".

Annual deliveries in 1994/95 include 138.8×10^6 (4.9 Bcf) of demand associated with the remaining payback of borrowed capacity.

TransCanada submitted that its base case requirements forecast is reasonable, and that it will continue to update that forecast based on the most current information available, and make any adjustments at the time the "Release for Construction" application is filed with the Board.

3.2 New Domestic Services

The applied-for facilities are supported by four domestic shippers who have requested incremental service totalling $942.5 \times 10^3 \text{ m}^3/\text{d}$ (33.4 MMcfd), which represents 12.0 percent of the total new firm service requirements (refer to Table 3-3).

3.2.1 Potter Station Power Co. Ltd.

Potter Station Power Co. Ltd. ("Potter") has executed a twenty-year Precedent Agreement with TransCanada, dated 25 February 1993, for the delivery of $200.0 \times 10^3 \text{ m}^3/\text{d}$ (7.1 MMcfd) of gas commencing 1 November 1994. The gas will be shipped from Alberta and Saskatchewan to Potter's plant located near Potter, Ontario.

The Potter facility is a 42.0 MW combined-cycle electric power generation plant consisting of a 21.8 MW gas turbine generator and a 17 MW steam turbine generator set. The plant will use three heat recovery steam generators to recover waste heat from Potter's new gas turbine generator and TransCanada's two existing pipeline gas turbines located at Compressor Station No. 102. The waste heat removed from the existing pipeline turbines is expected to generate 9.5 MW of electric power. The waste heat will be transferred via a duct system from TransCanada's compressors directly to the heat recovery steam generators on Potter's adjacent plant site. Potter and TransCanada have executed a twenty-year Waste Heat Agreement dated 3 May 1990.

The power generated by the Potter facility will be sold to Ontario Hydro commencing 1 November 1994 under the terms of an executed twenty-year Power Purchase Agreement dated 10 August 1992. The Power Purchase Agreement received Lieutenant Governor in Council approval on 23 August 1992.

Gas supply arrangements have been made with Northstar Energy Corporation ("Northstar") and Ocelot Energy Inc. ("Ocelot"). This supply was evaluated based upon the contracted volume of $200 \times 10^3 \text{ m}^3/\text{d}$ (7.1 MMcfd) over 15 years for a total volume of $1\,095 \times 10^3 \text{ m}^3$ (39 Bcf). Northstar will provide approximately 46 percent of the supply with the remaining 54 percent being furnished by Ocelot. For Northstar, the estimated volume of reserves supporting supply contracts, including Potter, amounts to $3\,361 \times 10^6 \text{ m}^3$ (118.7 Bcf) compared to corporate requirements of $3\,747 \times 10^6 \text{ m}^3$ (132.3 Bcf). In the event of shortfalls in deliverability, Northstar could forego some of its projected but currently uncontracted short term sales after 1993. Ocelot's submitted reserves in the Freefight pool were estimated by the Board to be $549 \times 10^6 \text{ m}^3$ (19.4 Bcf) compared to the 15-year requirement of $493 \times 10^6 \text{ m}^3$ (17.4 Bcf). For backstopping, Ocelot has identified an uncommitted corporate reserves of $3\,450 \times 10^6 \text{ m}^3$ (122 Bcf).

With respect to upstream transportation, Potter indicated that Northstar has applied for firm capacity from NOVA commencing 1 November 1994 and that Ocelot anticipates being able to renew its

existing transportation agreements with TransGas Limited ("TransGas") beyond their 31 October 1993 expiry date.

Centra Gas Ontario Inc. ("Centra Ontario") argued that the Potter project has not yet obtained all of the necessary downstream regulatory approvals and in particular, Ontario Energy Board ("OEB") approval of a Certificate of Public Convenience and Necessity for the connecting gas delivery facilities. Centra Ontario recommended that the Board condition any certificate or order requiring TransCanada to demonstrate that all required downstream regulatory approvals associated with the Potter project have been obtained.

In response to the issue raised by Centra Ontario, Potter argued that the OEB had reviewed the Potter project and had determined that no authorization was required under the *Ontario Energy Board Act*. Potter added that since the facility is not located within a municipality, the provisions of the *Municipal Franchises Act* do not apply. Potter concluded that Centra Ontario has no franchise rights in the area where the facility is to be located and that none of Centra Ontario's rights are being infringed.

With respect to Centra Ontario's recommendation that the Board condition any certificate or order requiring TransCanada to demonstrate that all required downstream regulatory approvals have been obtained, TransCanada argued that it had already accepted such a condition. TransCanada cited Condition 9(b)(ii) of Board Certificate GC-84 which requires that, unless the Board otherwise directs, prior to the commencement of construction of the approved facilities, TransCanada shall demonstrate to the Board's satisfaction that all necessary U.S. and Canadian regulatory approvals have been granted in respect of any necessary downstream facilities or transportation services associated with the new transportation services underpinning the approved facilities.

3.2.2 Nordic Power of Windsor Partnership

Nordic Power of Windsor Partnership ("Nordic Power") has executed a twenty-year Precedent Agreement with TransCanada, dated 7 April 1993, for the delivery of $542.5 \times 10^3 \text{ m}^3/\text{d}$ (19.2 MMcfd) of gas, commencing 1 September 1995. The gas will be shipped from Alberta and Saskatchewan to the interconnection of the TransCanada and Union facilities at Parkway, Ontario.

Nordic Power has two general partners: PLC-Windsor Ltd., a wholly-owned subsidiary of PowerLink Canada, which is owned by Northstar Energy Corporation and PowerLink management; and Windsor Power Limited Partnership, which is controlled by Nordic Power, Inc. of Ann Arbor, Michigan. Nordic Power is in the final stages of constructing a combined-cycle cogeneration facility at Windsor, Ontario, which will have a production capacity of 102 MW of electricity and 210 000 pounds per hour of steam. Initial testing of the facility is expected to take place on 1 March 1995, with full operation expected by 1 September 1995.

The electricity will be sold to Ontario Hydro under the terms of an executed twenty-year Power Purchase Agreement, dated 30 July 1992, which has received Lieutenant Governor in Council approval. The resulting steam will be sold to the Canadian Salt Company Limited and to ADM Agri-Industries, Ltd. Both facilities are located in Windsor, Ontario and will be connected to the Nordic Power facility by a 3.5 km steam pipeline.

Table 3-3

**New Firm Service Associated With
TransCanada's 1994/95 Facilities Application**

	Term	Volume	
	(Years)	(10³m³/d)	(MMcfd)
I. Domestic (Long Haul)			
Potter Station Power Co. Ltd.	20	200.0	7.1
Nordic Power of Windsor Partnership	20	542.5	19.2
Consumers' Gas Company Ltd.	10	<u>200.0</u>	<u>7.1</u>
Total Domestic		942.5	33.4
II. Export (at Chippawa, Ontario)			
(a) Long Haul			
Enron Gas Marketing, Inc.	20	805.0	28.4
New York State Electric & Gas Corporation	14	<u>283.3</u>	<u>10.0</u>
Total Export Long-Haul		1 088.3	38.4
(b) Short Haul			
Rochester Gas & Electric Corporation	14	1 558.0	55.0
Sithe/Independence Power Partners, L.P.	20	1 110.0	39.2
Sithe/Independence Power Partners, L.P.	20	<u>3 320.0</u>	<u>117.2</u>
Total Export Short-Haul		5 988.0	211.4
Total Export		7 076.3	249.8
Total Domestic & Export		8 018.8	283.2

Gas supply arrangements have been made with Wes Cana Energy Marketing Inc. ("Wes Cana"), Northstar and Summit Resources Limited ("Summit") to supply the maximum daily project quantity of $542.5 \times 10^3 \text{ m}^3/\text{d}$ (19.2 MMcfd) over 20 years for a total volume of $3\,960 \times 10^6 \text{ m}^3$ (139.8 Bcf). Wes Cana, Northstar and Summit are responsible for approximately 72 percent, 12 percent and 16 percent respectively of the total supply requirements. Wes Cana has estimated total corporate reserves of $24\,497 \times 10^6 \text{ m}^3$ (865 Bcf) compared to overall requirements of $17\,162 \times 10^6 \text{ m}^3$ (606 Bcf). The Nordic Power project requirements represent approximately 18 percent of Wes Cana's total corporate obligations. Northstar's overall corporate supply and total obligations, including Nordic Power, are described in section 3.2.1. Summit submitted dedicated lands with reserves of $248 \times 10^6 \text{ m}^3$ (8.8 Bcf) as estimated by the Board compared to requirements under its gas supply contract with Nordic Power of $339 \times 10^6 \text{ m}^3$ (12 Bcf) for the first 10 years. Summit's Nordic Power requirements over the full 20-year term are $679 \times 10^6 \text{ m}^3$ (24.0 Bcf) and will be supplied from both its dedicated lands and corporate supply which was estimated to be $2\,410 \times 10^6 \text{ m}^3$ (85.1 Bcf) compared to total corporate requirements of $2\,396 \times 10^6 \text{ m}^3$ (84.6 Bcf). Summit indicated that it would acquire $708 \times 10^6 \text{ m}^3$ (25.0 Bcf) of uncommitted gas during the 1993/94 season to supplement its corporate supply.

Upstream transportation arrangements on NOVA and TransGas are being negotiated by the three gas suppliers to the Nordic Power facility. Downstream, Nordic Power is finalizing its transportation arrangements with Union.

3.2.3 The Consumers' Gas Company Ltd.

Consumers' Gas has entered into a ten-year Precedent Agreement with TransCanada, dated 16 February 1992, for the delivery of $200.0 \times 10^3 \text{ m}^3/\text{d}$ (7.1 MMcfd) of gas from Alberta and Saskatchewan to Consumers' Gas' franchise area. Consumers' Gas has requested the additional firm service capacity, commencing 1 November 1994, to serve projected normal growth of 2.7 percent in its franchise area.

Consumers' Gas' supply portfolio consists of short, medium and long-term gas contracts. As of 1 May 1992, Consumers' Gas had $7\,402 \times 10^3 \text{ m}^3/\text{d}$ (261 MMcfd) of long term gas supply under contract. Gas supply in support of Consumers' Gas' additional firm service capacity will initially be drawn from existing contracts, with additional supply to be contracted as needed.

Upstream transportation on NOVA and TransGas will take place under existing transportation arrangements held by the gas suppliers.

3.3 New Export Services

The applied-for facilities are supported by three export shippers who have requested service totalling $7\,076.3 \times 10^3 \text{ m}^3/\text{d}$ (249.8 MMcfd), which represents 88 percent of the total new firm service requirements, of which $1\,088.3 \times 10^3 \text{ m}^3/\text{d}$ (38.4 MMcfd) is for long-haul firm service and $5\,988.0 \times 10^3 \text{ m}^3/\text{d}$ (211.4 MMcfd) is for short-haul firm service (refer to Table 3-3).

3.3.1 Sithe/Independence Power Partners, L.P.

Transportation service requested for the Sithe/Independence Power Partners, L.P. ("Sithe") project is comprised of the following three components:

- (a) Enron Gas Marketing Inc. ("Enron") and Enron Gas Services Corp. have executed a twenty-year Precedent Agreement with TransCanada dated 31 March 1993, as amended, for the delivery of $805.0 \text{ } 10^3 \text{ m}^3/\text{d}$ (28.4 MMcfd) of gas from Empress, Alberta to the export point at Chippawa, Ontario, commencing 1 November 1994.
- (b) Sithe has executed a twenty-year Precedent Agreement with TransCanada dated 6 November 1992, as amended, for the delivery of $3 \text{ } 320.0 \text{ } 10^3 \text{ m}^3/\text{d}$ (117.2 MMcfd) of gas from the import point at St. Clair, Ontario, to the export point at Chippawa, Ontario, commencing 1 November 1994.
- (c) Sithe has executed a twenty-year Precedent Agreement with TransCanada dated 6 November 1992, as amended, for the delivery of $1 \text{ } 109.6 \text{ } 10^3 \text{ m}^3/\text{d}$ (39.2 MMcfd) of gas from the Union point of interconnection with the TransCanada system at Kirkwall, Ontario, to the export point of Chippawa, Ontario, commencing 1 November 1994.

The gas to be transported by TransCanada under these three arrangements will be used to supply Sithe's 1000 MW gas-fuelled, combined-cycle cogeneration facility to be constructed near Scriba, New York. This facility is designated as a Qualifying Facility ("QF"), which is a cogeneration power production facility that is not more than 50 percent owned by electric utilities and meets standards set out in the U.S. Public Utility Regulatory Policies Act ("PURPA"). Consolidated Edison Company of New York, Inc. ("Consolidated Edison") and Niagara Mohawk Power Corporation ("NIMO") will purchase most of the electricity from Sithe under Power Purchase Agreements dated 20 May 1991 and 24 July 1992. Alcan Rolled Products Company, the steam host, and Sithe have entered into an Energy/Steam Sales Agreement dated 18 November 1992.

For upstream transportation associated with the first component, Unigas Corporation, Enron's gas supplier, has existing transportation service contracts with NOVA.

For upstream transportation associated with the second component, Sithe and ANR Pipeline Company ("ANR") have executed a 22-year Firm Transportation Service Agreement, dated 23 March 1992, for service commencing 1 April 1992 and terminating 31 December 2014. Sithe and Great Lakes Gas Transmission Limited Partnership ("GLGT") have executed a 20-year Transportation Service Agreement dated 5 May 1992 for service commencing 1 January 1995 and terminating 31 March 2015. The gas will be shipped through the ANR and GLGT systems to the international boundary at Sarnia, Ontario.

Two upstream transportation agreements have also been entered into for the third component. Sithe and Panhandle Eastern Pipe Line Company ("Panhandle") have executed a Precedent Agreement dated 20 March 1992, as amended, for transportation service, commencing 4 August 1994, from various receipt points on the Panhandle system to the point of interconnection with the Union system at Ojibway, Ontario. Sithe and Union have also entered into a long-term C-1 and an M-12 Firm Transportation Contract, both dated 10 April 1992, as amended, for delivery of the gas from Ojibway to Kirkwall, Ontario. Each contract is for a period of 20 years, commencing 1 November 1994.

TransCanada has applied for approval of an Assignment Agreement executed between Union, Sithe and TransCanada for the assignment to TransCanada of Sithe's right to Union M-12 capacity (refer to Section 3.5).

Downstream, Sithe has executed a twenty-year firm service Precedent Agreement with Empire State Pipeline Company Inc. ("Empire"), dated 28 February 1992, for the transportation of the gas from Chippawa, Ontario to several delivery points in New York State, commencing 1 August 1994. Sithe and NIMO have executed a twenty-year Gas Transportation Agreement, dated 11 March 1992, for service commencing 1 August 1994.

Enron's licence application to export $805.0 \times 10^3 \text{ m}^3/\text{d}$ (28.4 MMcfd) of gas at Chippawa, Ontario was approved by the Board in the GH-7-92 proceeding. The gas supply contract supporting the licence has a term of 10 years.

Sithe was issued a long-term order GOL-13-92 by the Board on 27 November 1992 for the import for subsequent export of natural gas over twenty years commencing 1 August 1994. Enron has received a ten-year import authorization from the U.S. Department of Energy/Office of Fossil Energy ("DOE/FE"). Similarly, the DOE/FE granted Sithe a twenty-year import order. Empire has received all U.S. regulatory approvals and construction of the pipeline began in June 1993. A decision with respect to GLGT's facilities application before FERC is expected in due course. A decision regarding NIMO's application for New York Public Service Commission ("NYPSC") facility and service authorizations is expected in the summer or early fall of 1993.

Gas supply arrangements have been made with Enron Power Services Inc. and Enron for short haul gas at the St. Clair and Kirkwall receipt points (i.e. transit gas) totalling $4\,718 \times 10^3 \text{ m}^3/\text{d}$ (166.6 MMcfd). Sithe and Enron Power Services Inc. have entered into an Amended and Restated Base Gas Sales Agreement dated 26 October 1992. This is a twenty-year agreement commencing on 1 January 1995 or on the Date of Commercial Operations.

3.3.2 New York State Electric & Gas Corporation

New York State Electric & Gas Corporation ("NYSEG") and TransCanada have executed a fourteen-year Precedent Agreement dated 16 March 1993, as amended, for the delivery of $283.3 \times 10^3 \text{ m}^3/\text{d}$ (10.0 MMcfd) of gas from Empress, Alberta to the Chippawa, Ontario export point, commencing 1 November 1994. NYSEG is a combination electric and gas utility serving over 220,000 customers in various franchise areas in the State of New York. NYSEG will use the gas as system supply, primarily to meet peak day requirements and to allow for market development.

NYSEG has executed a ten-year natural gas purchase agreement with Crestar Energy Inc. ("Crestar") for approximately $283.3 \times 10^3 \text{ m}^3/\text{d}$ (10 MMcfd).

NYSEG's licence application to export $283.3 \times 10^3 \text{ m}^3/\text{d}$ (10.0 MMcfd) of gas at Chippawa, Ontario was approved by the Board in the GH-7-92 proceeding. NYSEG's DOE/FE import authorization was granted on 3 March 1993.

Crestar holds sufficient upstream capacity on NOVA. Downstream, NYSEG and Empire have executed a fifteen-year Precedent Agreement, dated 3 March 1992, for delivery of gas from the

Canada-U.S. border near Chippawa, Ontario to NYSEG's service areas. Empire has received FERC and NYPSC approvals to construct its pipeline facilities. NYSEG has also received NYPSC approval to construct the Lockport lateral that will connect its franchise area to the Empire pipeline.

3.3.3 Rochester Gas & Electric Corporation

Rochester Gas & Electric Corporation ("RG&E") and TransCanada have executed a fourteen-year Precedent Agreement dated 21 May 1993, as amended, for the delivery of $1\,558.0\,10^3\text{m}^3/\text{d}$ (55.0 MMcfd) of gas, commencing 1 November 1994, from the St. Clair, Ontario receipt point to the Chippawa, Ontario export point.

RG&E is a combination electric and natural gas distribution utility serving gas customers in upstate New York, more specifically in the City of Rochester and parts of the seven surrounding counties. The gas will be used by RG&E to satisfy its system supply requirements; diversify its gas supply portfolio, transportation and storage arrangements; and lessen its dependence on the CNG Transmission Corp. system, RG&E's current sole source of gas.

RG&E indicated that it projects winter and summer load factors on the Canadian facilities of 40 percent and 10 percent, respectively, and an overall yearly average load factor of about 32 percent. RG&E explained that it is currently pursuing opportunities to assign temporary surplus capacity to help reduce its Canadian transportation costs.

Upstream, RG&E will use its existing ANR storage and transportation arrangements and its existing GLGT transportation agreement to deliver the gas to the point of interconnection with the Union system. GLGT's facilities application filed with FERC under Docket Number CP92-595 is pending.

An M-12 Contract has been executed between Union and RG&E. TransCanada has applied for approval of an Assignment Agreement executed between Union, RG&E, and TransCanada for the assignment to TransCanada of RG&E's right to Union capacity (refer to Section 3.5).

Downstream, RG&E and Empire have executed a fifteen-year Precedent Agreement, dated 1 March 1992, for the transportation of the gas from the point of interconnection of TransCanada's Blackhorse Extension and the Empire system at Chippawa, Ontario. All relevant regulatory authorizations have been received.

RG&E received a fifteen-year import for subsequent export order from the Board, as well as a DOE/FE export for subsequent import approval.

Gas supply for the incremental transit volume of $1\,558\,10^3\text{m}^3/\text{d}$ (55 MMcfd) is related to the total transit volume of $5\,990\,10^3\text{m}^3/\text{d}$ (211.5 MMcfd) contracted by RG&E as of November 1, 1994. RG&E currently has executed gas supply contracts for approximately $1\,586\,10^3\text{m}^3/\text{d}$ (56 MMcfd) for the five winter months starting 1 November 1994. For the remainder of the 1994 gas year, RG&E has gas contracts for $1\,487\,10^3\text{m}^3/\text{d}$ (52.5 MMcfd). These contracts are with four U.S. gas suppliers and range in duration from three to eight years. RG&E expects to have additional gas contracted by November 1, 1994 for a total of $1\,810\,10^3\text{m}^3/\text{d}$ (63.9 MMcfd). The balance of the peak flow volume of approximately $4\,181\,10^3\text{m}^3/\text{d}$ (147.6 MMcfd) is equal to RG&E's maximum delivery volume out of ANR storage in Michigan.

In argument, the Alberta Petroleum Marketing Commission ("APMC") took note of RG&E's evidence that, prior to seeking release to construct the facilities, further supply contracts for approximately 224 $10^3\text{m}^3/\text{d}$ (7.9 MMcfd) would be obtained to underpin the 1 558 $10^3\text{m}^3/\text{d}$ (55 MMcfd) of incremental transportation capacity. In the view of the APMC, it was unclear as to what level and nature of supply would be required, in conjunction with storage, to satisfy the Board that the facilities would be used in the long term.

Views of the Board

The Board finds TransCanada's requirements forecast to be reasonable for the purpose of assessing TransCanada's facilities requirements for the 1994/95 contract year. As well, the Board is satisfied that the new domestic and export transportation services, scheduled to commence in the 1994/95 contract year, are sufficiently advanced with respect to gas supply arrangements; upstream and downstream transportation arrangements; gas sales arrangements; and securing the necessary Canadian and U.S. regulatory approvals, to support TransCanada's facilities design. The Board expects that all outstanding contractual and regulatory matters can be finalized in a timely manner to allow those services to commence as currently anticipated.

The Board is satisfied with TransCanada's approach to independent verification of the information furnished by prospective shippers in support of their service requests. Nevertheless, the Board continues to believe that, to ensure that the applied-for facilities will be used and useful over the long-term, the commencement of construction of the approved facilities should be conditional upon TransCanada demonstrating to the Board's satisfaction that, in respect of the new firm export services, all necessary U.S. and Canadian federal regulatory approvals have been received. Similarly, the Board is of the view that TransCanada should be required to demonstrate that, in respect of all new firm transportation services on its system, all necessary U.S. and Canadian regulatory approvals have been granted for any necessary downstream facilities or transportation services.

The Board believes that changes to TransCanada's base case requirements could affect the need for the applied-for facilities and, accordingly, the Board expects TransCanada to continue to monitor its base case requirements and, in the event of a change which impacts upon aggregate requirements, to revise its facilities requirements accordingly. The Board believes that it would be appropriate to condition any certificate that is to be issued to this effect.

The Board is satisfied that the aforementioned certificate conditions would ensure the construction of only those facilities which are required to meet the aggregate firm requirements.

With respect to Centra Ontario's recommendation regarding the Potter project, the Board is satisfied that its standard certificate condition regarding regulatory approvals associated with downstream facilities construction is sufficient. The Board considers that it is not within its jurisdiction to determine whether the *Ontario Energy Board Act* or the *Municipal Franchise Act* would apply in the case of any connecting downstream facilities associated with the Potter project.

The Board is satisfied that TransCanada provided the required information on project-specific gas supply for shippers requesting new firm transportation service. For the purposes of this proceeding, and consistent with the views expressed in GHW-3-89, the Board does not require gas supply

information in support of Consumers' Gas' service request as it results from normal market growth within its franchise area.

As was the case in the GH-R-1-92 proceeding, the Board considers RG&E's combination of storage, transportation arrangements, and gas supply contracts sufficient to demonstrate that it has access to sufficient gas supply in support of its service request. The ability to store gas is a component of RG&E's gas supply arrangements and gas stored in the summer is used to supplement straight flowing gas to meet the peak daily requirements within the RG&E franchise area. Therefore, when the Board examines RG&E's gas supply arrangements, it takes into account the fact that RG&E has storage contracts in place with ANR in Michigan which allow RG&E to accumulate gas for use during peak demand periods. As a result, RG&E does not require supply contracts for 211.5 MMcfd of gas on a straight flowing basis. However, given that incremental gas supply arrangements are not yet finalized, the Board will require TransCanada to file the executed gas supply contracts prior to the commencement of construction. Additionally, since the terms of these supply contracts will be less than that usually required by TransCanada, TransCanada will be responsible for any unrecovered demand changes which might occur during the first fifteen years of the project. Specifically, unrecovered demand changes for RG&E's short-haul volumes of $7\,468\,10^3\text{m}^3/\text{d}$ (211.5 MMcfd) will not be eligible for treatment in a deferral account.

On the basis of its review of both the reserves and productive capacity, the Board is satisfied with the supply arrangements outlined for both the domestic and export shippers in support of their requests for capacity.

3.4 Risk and Financial Assurances

3.4.1 Risk

The risks associated with capacity expansion, including market and regulatory risks in other jurisdictions, are among the criteria used by the Board to determine the likelihood that the applied-for facilities will be used at a reasonable level over their economic life and that the associated demand charges will be paid.

TransCanada and the individual expansion shippers argued that the new services underpinning the applied-for facilities represent viable, long-term markets, for which the contractual arrangements and regulatory approvals have been finalized or are expected to be finalized shortly. With respect to the domestic market, Consumers' Gas' modest increase in contracted capacity is intended to serve normal market growth in its existing franchise area. The two domestic power projects, Potter and Nordic Power, have firm commitments from Ontario Hydro to purchase the electric power and the associated Power Purchase Agreements have received Lieutenant Governor In Council approval. With respect to the export market, the new services are required to serve market growth associated with an increased requirement for electric power generation through cogeneration and to enable two U.S. LDCs, NYSEG and RG&E, to diversify their gas supply portfolio and to serve their expanding New York State franchise areas.

TransCanada noted that while RG&E is continuing to contract for gas supply with varying terms, it has secured commitments for firm transportation from the U.S. producing areas and for firm storage

for the full term of its TransCanada transportation arrangements. TransCanada noted that the FS contracts underpinning the expansion do not contain regulatory, market, supply, or transportation "out" provisions.

TransCanada acknowledged that there are supply, market and regulatory uncertainties which could impact upon the need for the applied-for facilities and upon whether the demand charges will be paid. TransCanada cited the following examples:

- FERC Order 636 and NYPSC curtailment proceedings with respect to non-utility generation ("NUG");
- reduced peak day deliveries on the NOVA system;
- the relative price of gas vis-à-vis energy alternatives;
- Ontario Hydro's changing electricity supply/demand balance, and in particular, the impact of Ontario Hydro's current electricity surplus upon purchases of electricity from NUGs; and
- competition from alternative gas supply sources and alternative transportation systems.

TransCanada argued that it continually monitors such events and consults with its shippers to enable it to respond to any changes in circumstances, thereby allowing it to adjust its facility design and construction schedule accordingly. TransCanada submitted that such responsiveness enables it to operate its pipeline system at a reasonable level over the long term.

TransCanada noted that NIMO has filed a petition with NYPSC for approval of NUG curtailment procedures. TransCanada explained that NIMO has claimed the existence of an oversupply of power generation capacity, particularly during lighter load factor periods.

TransCanada submitted that in accordance with the provisions of the PURPA and State policy, NIMO is obliged to take all NUG capacity which results in NIMO having to curtail its own base load facilities or to release excess electric power to the power pool at a loss during periods of oversupply. Through its petition, NIMO is seeking the flexibility to curtail the must-run facilities as required.

As a participant in the curtailment petition proceedings, TransCanada argued that consideration should be given to the substantial Canadian investment in delivering gas to the New York NUG projects. TransCanada has requested that the NYPSC leave the electric utilities and the NUGs to reach a settlement. TransCanada believes that an NYPSC decision granting NIMO's petition would result in a portion of the must-run facilities changing to a utility-dispatchable structure, under which capacity payments compensate facility and related infrastructure costs and energy payments compensate commodity fuel supply costs.

If the NYPSC accepts NIMO's petition, TransCanada believes that the energy sales by Sithe would not be significantly affected due to its low energy price compared to most QFs selling to NIMO. TransCanada expects that NIMO would curtail must-run facilities based on price and not on dispatch capability or other contractual arrangements. TransCanada believes that holders of its transportation services would utilize their service agreements to deliver gas to alternative markets should their NUG markets be curtailed.

Consumers' Gas argued that in the event the NYPSC approves some form of curtailment, TransCanada's load factor could be affected to the extent that a shipper affected by the curtailment is

unable to use its transportation entitlement. Consumers' Gas added that regulatory support for curtailment could affect the financial viability of the affected NUGs and, therefore, their ability to pay TransCanada's demand charges, either directly as the shipper or indirectly through their gas supplier.

Consumers' Gas requested that the Board impose a certificate condition requiring TransCanada to submit for Board approval, a comprehensive assessment of the impact of NYPSC's decision on NUG curtailment upon TransCanada's requirements prior to the construction of the applied-for facilities. The APMC concurred with this request.

Enron, Sithe and Enron Power Services Inc. jointly argued that they do not agree with concerns expressed by Consumers' Gas with respect to the potential effects of curtailment. They stated that the risk associated with their project is minimal. They explained that only about 0.75 percent of sales would be impacted under their NIMO contract, and that a slightly higher percentage of risk, in terms of maximum curtailment, is applicable to the Consolidated Edison contract.

TransCanada did not object to the imposition of such a certificate condition as described by Consumers' Gas relating to the curtailment proceedings.

TransCanada noted that it continues to monitor developments with respect to the implementation of FERC Order 636 and, in particular, the possible impacts of that Order upon Canadian export sales. TransCanada stated that FERC has acted upon at least two-thirds of the 78 compliance filings made to date, although revised filings are required. Currently five U.S. pipelines have received final approval to operate under FERC Order 636. FERC plans to fully implement its Order 636 by November 1993.

TransCanada submitted that FERC has remained consistent with the principles of its Order 636 and, in particular, that it has:

- upheld the complete unbundling of sales, transmission, storage and gathering functions, but has permitted exceptions where the operational needs of the pipelines have been clearly demonstrated;
- promoted straight-fixed variable rate design;
- required authorization of transition cost recovery through rate proceedings;
- promoted market centre development through mileage sensitivity in rates and proper cost allocation between field and market zones;
- promoted open and flexible capacity release programs; and
- promoted flexible receipt and delivery points within the transportation path defined by the transportation contracts.

TransCanada explained that it has contacted its shippers that could be affected by FERC Order 636 and has concluded that it is still too early to assess the impact of this Order on Canadian export sales. TransCanada noted that none of its shippers suggested a reduction in their forecasts as a result of the implementation of FERC Order 636. TransCanada indicated that the Order could potentially affect

about 16 percent of its total export deliveries, amounting to approximately $2\,537.0\,10^3\text{m}^3/\text{d}$ (895.8 MMcfd). TransCanada argued that the degree to which Canadian gas supplies remain competitive with U.S. supplies post FERC Order 636 will determine the impact on Canadian export sales, and hence upon the need for TransCanada transportation services.

TransCanada remains positive that FERC Order 636 will be beneficial to Canadian suppliers by providing equal access to firm U.S. transportation capacity and storage, at rates which more accurately reflect the actual cost of providing the service. TransCanada believes that Canadian gas suppliers will continue to play a role in meeting U.S. gas demand.

Tennessee Gas Pipeline Company noted the continuing uncertainties regarding the impact of FERC Order 636 on Canadian export sales. Accordingly, it recommended that the Board impose a condition on any certificate issued as a result of the proceedings, identical to Condition 10(c) imposed in Certificate GC-84 issued by the Board following the GH-4-92 proceeding.

3.4.2 Financial Assurances

TransCanada has executed either a Performance Agreement on Financial Assurances or a Letter Agreement with some, but not with all, of the expansion shippers underpinning its facilities application. In the case of the domestic shippers, financial assurance agreements were executed with Potter and Nordic Power, whereas a financial assurance agreement was not required in the case of Consumers' Gas. In the case of the export shippers, Letter Agreements were executed with NYSEG and RG&E and a Performance Agreement on Financial Assurances was executed with Sithe. In the case of Enron, TransCanada agreed to accept Enron Gas Services Corporation's ("Enron Corp.") co-signature on the Precedent Agreement and on the FS Contract. Enron Corp. is the parent company of Enron.

Under a Performance Agreement on Financial Assurances, a shipper agrees to provide TransCanada with an irrevocable rolling standby letter of credit equivalent to twelve months of firm service demand charges. In the case of Sithe, it agreed to provide TransCanada with two irrevocable standby letters of credit: one equivalent to twelve months of firm service demand charges and the other equivalent to sixty days of demand charges related to the delivery pressure charges. As well, Enron Corp. agreed to supply TransCanada with a financial guarantee on behalf of Sithe which provides that, in the event Sithe defaults on any of its transportation service payments to TransCanada as a result of a lack of gas supply from Enron Power Services, Inc., Enron Corp. will assume responsibility for payment.

Under a Letter Agreement, TransCanada waives any further financial assurance requirements based upon its assessment of a shipper's current financial status. However, should TransCanada become dissatisfied with a shipper's creditworthiness, it reserves the right, during the term of the FS Contract, to perform further financial reviews of the shipper and to request additional financial assurances.

Views of the Board

The Board concurs with those parties who have argued that the outcome of the NYPSC curtailment proceedings could have an impact on TransCanada's requirements underpinned by NUG projects in New York and, thus, on the need for the applied-for facilities. Therefore, the Board will condition any certificate that it might issue to require TransCanada, unless the Board otherwise directs, to submit for

Board approval prior to the commencement of construction, an assessment prepared in consultation with its shippers of the impact of the NYPSC's decision with respect to the curtailment of electricity purchases from NUGs on TransCanada's base case requirements and upon the new services underpinning the applied-for facilities.

Likewise, while the Board acknowledges TransCanada's continuing efforts to assess the potential impact on its system of FERC Order 636, it nevertheless continues to believe that it would be appropriate to condition any certificate to be issued in this regard. Specifically, TransCanada will be required to submit for Board approval prior to the commencement of construction, unless the Board otherwise directs, an assessment prepared in consultation with its shippers of the impact of FERC Order 636 upon TransCanada's base case requirements and upon the new services underpinning the applied-for facilities.

The Board is of the view that the prudence of TransCanada's decision regarding the required level of financial assurances would be reviewed in the event that a shipper defaulted on its demand charge obligations, and TransCanada applied to the Board for the recovery of those demand charges from the remaining system users.

The Board continues to believe that TransCanada is in the best position to assess the risks associated with the individual service contracts underpinning the applied-for facilities expansion and, in particular, to determine the risk associated with the recovery of demand charges. The Board also continues to believe that TransCanada should retain the right to determine whether financial assurances should be obtained from expansion shippers and, if financial assurances are required, TransCanada should retain the right to determine the type of financial assurance package to be negotiated.

3.5 Assignments of Union M-12 Contracts

TransCanada applied, in accordance with Section 9.3.1 of the Board's GH-2-87 Reasons for Decision⁶, for Board approval of assignments to TransCanada from Sithe and RG&E of the following two long-term Union M-12 Contracts:

- (a) Sithe/Union M-12 Contract dated 6 April 1992 which provides for the delivery of 3320.0 10³m³/d (117.2 MMcfd) of gas on the Union system, commencing on the later of 1 November 1994 or on the day following the date all conditions precedent have been satisfied or have been waived; and
- (b) RG&E/Union M-12 Contract dated 9 December 1992 which provides for the delivery of 1 560.0 10³m³/d (55.0 MMcfd) of gas on the Union system, commencing on the later of 1 November 1994 or on the day following the date all conditions precedent have been satisfied or have been waived.

Both M-12 Contracts provide for the delivery of gas from Dawn to Kirkwall, Ontario on the Union system.

⁶ Section 9.3.1 of the Board's GH-2-87 Reasons for Decision provides that TransCanada seek approval from the Board prior to committing itself to a change in its long-term contractual obligations with other pipeline companies when the costs of transportation services provided under the contracts are included in TransCanada's revenue requirements.

TransCanada submitted that the increase in M-12 transportation will provide TransCanada, for the duration of the assignment agreements, with the necessary capability, when combined with its existing and proposed facilities, to meet its aggregate transportation service demands. Specifically, TransCanada noted that, in order to fulfil its contractual obligations to Sithe under the Precedent Agreement dated 6 November 1992 and to RG&E under the Precedent Agreement dated 21 May 1993, as amended, it requires additional M-12 transportation capacity on Union. Both Precedent Agreements provide for the delivery of gas from TransCanada's St. Clair receipt point to its Chippawa export point, and were filed in support of the applied-for facilities. TransCanada explained that in order to secure additional Union M-12 transportation capacity, the aforementioned two Precedent Agreements contemplate an assignment to TransCanada of the M-12 Contracts held by Sithe and RG&E, subject to Board approval.

TransCanada explained that it prefers to accept assignments of the M-12 Contracts between Union and Sithe and between Union and RG&E, since, unlike its own M-12 Contracts with Union, the assigned M-12 Contracts contain provisions which TransCanada can use to minimize, suspend or terminate its obligations to Union in the event that RG&E or Sithe are unable to fulfil their obligations to TransCanada. In this case, the rights and obligations under the RG&E/Union contract and under the Sithe/Union contract would revert back to those two shippers.

TransCanada testified that it has offered to reduce its existing M-12 Contract demand from Dawn to Parkway and from Dawn to Kirkwall by $2\,832.8\ 10^3\text{m}^3/\text{d}$ (100.0 MMcfd) for the winter period 1 November 1993 to 31 March 1994. While Union has yet to respond to TransCanada's offer, TransCanada submitted that it understands that Union could use as much as $2\,407.9\ 10^3\text{m}^3/\text{d}$ (85.0 MMcfd). TransCanada explained that this offer was made entirely for facilities design purposes. Specifically, in order to meet its total volume requirements at Kirkwall for subsequent delivery at Niagara Falls or Chippawa, TransCanada requires gas flowing from both Dawn and Parkway. TransCanada has determined that the most cost-efficient way of accomplishing this would be to have less gas flowing from Dawn and more from Parkway. TransCanada explained that this is simply an assignment to Union of M-12 Contract capacity currently held by TransCanada for a specified time and volume and, once agreed upon, would relieve TransCanada of any associated demand charges. TransCanada noted that the capacity would revert back to TransCanada on 1 April 1994, although TransCanada is considering a permanent de-contracting of a portion of its Union capacity from Dawn to Parkway, and replacing that capacity with westerly Union capacity at Parkway.

Views of the Board

The Board is satisfied that the acquisition by TransCanada of Union M-12 capacity totalling $4\,880.0\ 10^3\text{m}^3/\text{d}$ (172.2 MMcfd) is in the public interest and is required by TransCanada to provide service to Sithe and RG&E.

Decision

The Board approves the Assignment Agreement between Sithe, TransCanada, and Union for $3\,320.0\ 10^3\text{m}^3/\text{d}$ (117.2 MMcfd), and the Assignment Agreement between RG&E, TransCanada, and Union for $1\,560.0\ 10^3\text{m}^3/\text{d}$ (55.0 MMcfd) of Firm Service capacity.

Facilities

4.1 Specific Facilities

The facilities applied for by TransCanada consist of 164.4 km of new pipeline loop across the system, 129.0 MW of compression equipment, manifoldng at various compressor stations, two aftercoolers, new metering facilities, standby plants, spares, and 19 aero assemblies.

Details and costs of these facilities are provided in Figure 4-1 and Table 4-1. The total capital cost of the facilities is estimated (in 1993 dollars) at \$397.3 million. TransCanada submitted that the proposed facilities are required by the present and future public convenience and necessity.

The expansion would allow for the retirement of two aging compressor units at Stations 99 and 127. TransCanada proposed to replace the 5.7 MW portable compressor unit at Station 99 with a permanent 26.1 MW unit, and the 8.1 MW compressor unit at Station 127 with a 26.1 MW unit, both to replace the power lost and provide increased capacity.

TransCanada proposed to expand its system along the Central Section rather than request additional service on the GLGT system. TransCanada indicated that the selection of optimal facilities on its system was based on future growth projections as well as the volumes underpinning the application. TransCanada submitted that the changes in the proposed facilities contemplated in the 22 March and 28 May 1993 revisions reflect decreases in the projected requirements and did not change the results of TransCanada's analysis of the optimum allocation of facilities between the Central Section and the GLGT system. As a result, TransCanada indicated that the present worth analyses were not revised from the 18 December 1992 and 22 March 1993 filings, and the revised set of applied for facilities are a subset of the optimal facilities selected for each section.

During the proceeding, Union questioned the merits of TransCanada's decision to expand its Central Section rather than request additional service on the GLGT system. Union was of the view that the relative costs and benefits of other expansion alternatives may not have been adequately addressed. Union argued that TransCanada should have taken into account the option of contracting for a shorter term on the GLGT system when deciding whether to expand on the Central Section or on GLGT. Union characterized TransCanada's analysis as limited because the analysis assumes, as a necessary premise, the requirement to contract for a 28-year period on GLGT. Union acknowledged that if TransCanada's market is sustained for 28 years, the decision to build facilities on the Central Section would turn out to have been economical. However, Union stated that if after 10 years TransCanada's market diminished, the savings of having committed to only 10 years of tolls instead of building facilities on the Central Section would be substantial, since 18 years of annual owning and operating costs would be avoided. Union submitted that this approach to meeting market expansion should be considered and presented in each facilities application, so that the Board and interested parties can assess the risks as well as the economics of options available to meet increased demand on the TransCanada system.

In its reply argument, TransCanada noted that its existing GLGT transportation capacity consists of 36 146 10³m³/day (1276 MMcfd) and that its contracts have differing expiry terms which permit TransCanada to not renew any of those contracts should aggregate requirements be reduced.

Views of the Board

In the circumstances of this case, the Board is prepared to accept TransCanada's proposed system expansion on the Central Section in lieu of seeking additional transportation service on GLGT. The Board also notes that had TransCanada selected the GLGT option following the 22 March and 28 May 1993 revisions to its application, TransCanada might have had insufficient time to arrange for additional capacity on the GLGT and Union systems and have the required facilities constructed for a 1 November 1994 in-service date.

The Board is of the view that the proposed facilities represent an appropriate design for an expansion of the TransCanada system to provide the new firm transportation requirements for the 1994/95 contract year and that the system requirements justify the installation of the proposed facilities.

4.2 Blackhorse Variation

Following the release of the Board's GH-R-1-92 Decision in June 1992 and Order XG-23-92 which approved the Blackhorse Extension facilities, the connecting Empire State Pipeline received NYPSC approval to increase the maximum allowable operating pressure of its pipeline from 6825 kPa (1000 psig) to 9925 kPa (1440 psig). This increase in design pressure would enable Empire to meet increases in contracted requirements on its system. Accordingly, Empire asked TransCanada to provide the capability to increase its delivery pressure to 9925 kPa (1440 psig) with the addition of compression.

In response to Empire's request, TransCanada applied to the Board by letter dated 8 January 1993 for a specification upgrade of the pipe required for the Chippawa Channel crossing of the Niagara River. TransCanada noted in its application that affected shippers supported the proposed upgrade to the pipeline facilities. The Board approved the proposed upgrade by letter dated 4 February 1993 and granted release and/or waiver of Conditions 8, 9, and 10 of Order XG-23-92 for the Blackhorse Facilities by letters dated 10 June and 22 July 1993.

In the GH-2-93 application, TransCanada sought further modifications to the pipeline facilities on the Blackhorse Extension. The proposed variation involved a pipe specification upgrade for the pipeline facilities located between the proposed Douglastown Compressor Station and the Chippawa Channel crossing of the Niagara River, the mainline valve assembly at the Chippawa Meter Station and the two meter runs at the Chippawa Meter Station. The total capital cost of the proposed upgrades is estimated at \$225 000. TransCanada plans to recover these costs from all contracted firm shippers at Chippawa in a demand toll relating to delivery pressure service regardless of whether the Douglastown Compressor Station is installed.

TransCanada also requested approval of the proposed Douglastown Compressor Station manifold and of the addition of two new meter runs at the Chippawa Meter Station, estimated at \$1 666 000.

TransCanada indicated that the new and upgraded facilities are required for a 1 November 1993 in service date, and requested an early decision in order to allow the modifications to be included in the 1993 construction specifications. TransCanada noted that scheduling the installation of the upgraded facilities with the Blackhorse Extension would avoid the cost of replacements at a later date and considered that the amount of downtime required to shut down the pipeline for subsequent upgrades would not be acceptable.

Views of the Board

The Board is of the view that the proposed Blackhorse Variation represents an appropriate design for an expansion of the TransCanada Niagara system to provide the Empire firm transportation requirements for the 1994/95 contract year. In light of the timing considerations, the Board believes that an early decision approving the design changes and new facilities so that they may be constructed in 1993 is appropriate and will minimize construction costs.

Therefore, pursuant to Condition 3(2) of Order XG-23-92, the Board approved by letter dated 12 July 1993 TransCanada's request for the variation in pipe specifications for the proposed pipeline facility upgrades. The Board also issued Orders XG-T1-29-93 and XG-T1-36-93, dated 6 July and 26 July 1993, pursuant to section 58 of the Act, the effect of which was to approve, respectively, the additional two meter runs requested for the Chippawa Meter Station and the Douglastown Compressor Station manifolding.

4.3 System Capability Factors

TransCanada uses assumptions for its flow calculations which represent, in theory, normal conditions which influence the performance of the system. Adjustments, in the form of a capability factor, are made to the theoretical results to reflect certain fluctuations in the assumed data, such as unplanned pipeline and compressor outages, ambient temperature changes, etc. The purpose of the capability factor is therefore to create a capacity reserve (i.e., provide for extra facilities) that accounts for the loss in capability as a result of those fluctuations.

TransCanada undertook in the GH-4-92 proceeding to provide the Board with an annual progress report on the study of factors that impact system capability and improvements to the accuracy and reliability of TransCanada's pipeline simulator. The study submitted by TransCanada addressed the probability of effects such as facility outages, temperature changes, and the coordination of maintenance activities with interconnecting pipeline systems acting together to decrease or increase the capability of TransCanada's system.

Based on this study, TransCanada concluded that the winter and summer capability factors of 97 and 94 percent continue to be appropriate. However, in order to reduce the amount of facilities required, TransCanada proposed to shift certain planned maintenance from the summer to the winter. To reflect this shift in the maintenance schedule, and coordination problems with interconnecting pipeline systems which do not schedule their maintenance in the winter, a capability factor of 95 percent was proposed for both the winter and summer seasons.

Consumers' Gas noted that TransCanada derived its summer season capability factor by adjusting its winter season capability factor to reflect planned maintenance, notwithstanding the fact that

higher summer load factors have resulted in the summer season becoming the design season. Consumers' Gas also noted that TransCanada had confirmed that the summer season capability factor could be different had summer season variables been incorporated. Consumers' Gas therefore believed that it would be more appropriate to calculate the summer capability factor on the basis of summer season data. Consumers' Gas indicated it was confident that TransCanada would resolve the methodological problems of calculating its summer season capability factor specifically on the basis of summer season conditions.

Views of the Board

The Board is satisfied that the update to the TransCanada PipeLines System Capability Estimates reasonably quantifies the impact of facility outages, temperature changes, and the coordination of maintenance activities with interconnecting pipeline systems. The Board notes that TransCanada indicated during its cross-examination by Consumers' Gas that as historical data becomes available, TransCanada expects that the summer season availability figures will begin to reflect the operation of the system based on a summer season design. The Board expects TransCanada to continue to refine and update its system capability estimates using the best information available.

4.4 Advance Capability

Consumers' Gas noted that TransCanada designs its system on the basis of load factor projections, as opposed to contract demand, and that this design philosophy has resulted in shippers benefitting from the savings in construction and operating costs associated with facilities that might otherwise not be required. Consumers' Gas pointed out, however, that the principal risk associated with such a design philosophy is that the load factor forecast that TransCanada relies upon for facilities planning purposes may be different from the one used at the time TransCanada applies to the Board for release to construct the approved facilities, and different again from its load factor forecast available at the time facilities are actually put into service.

Consumer's Gas argued that, while TransCanada can amend its facilities design downward to reflect a lower forecast, TransCanada cannot "upsize" its facilities design in the post-certificate stage, should the most recent forecast be higher than the one used for facilities planning purposes. Consumers' Gas submitted that should the latter occur, TransCanada could either advance construction of previously-approved facilities or enter into capacity loan agreements with one or more of the existing shippers. Consumers' Gas added that, should either of these two options be unavailable to TransCanada, its only remedy would be to prorate the deliveries of all its shippers.

Consumers' Gas expressed concern regarding the risks inherent in a "tight system" particularly in the current volatile market and regulatory environment that contributes to forecasting difficulties. Therefore, Consumers' Gas recommended that TransCanada make specific allowance for some level of "advance capability" in its subsequent facilities applications. Consumers' Gas laid out a four-step proposal, the key feature of which would see TransCanada adjust upward the forecast of aggregate requirements on which it bases its annual facilities design. The size of the adjustment would be determined by TransCanada, and would reflect supply, market and regulatory conditions prevailing at the time. Consumers' Gas suggested a one percent adjustment to the design load factor for the summer season might be appropriate, given the current environment in which the

Canadian-U.S. gas price differential is resulting in higher load factors, but which is being partially offset by U.S. regulatory initiatives and uncertainties.

Consumers' Gas noted that under its proposal, facility release for construction would still only occur if TransCanada is able to demonstrate that the facilities are required to satisfy TransCanada's most recent forecast. Consumers' Gas emphasized that under its four-step proposal, there would be no planned excess system capacity built, and that the applied-for advance capability would be intended to accommodate unforeseen increases in load factor, and not to accommodate new services which have yet to be considered in the context of a facilities application hearing.

Views of the Board

The Board agrees that current uncertainties make long-term load factor forecasting difficult, and raise doubts as to the sustainability of TransCanada's load factor projections over the long term. However, the Board continues to be of the view that despite these uncertainties, basing TransCanada's facility design on the projected load factor is prudent. The Board likewise continues to hold the view that should load factors decrease, the certificate conditions provide sufficient protection against possible facility over-construction. Conversely, should the load factor increase, the Board is satisfied that TransCanada has a number of options available to it which would enable TransCanada to satisfy the additional or unforeseen service demands.

4.5 Compression Facilities

TransCanada indicated that it had recently broadened its compressor unit vendor base. In order to take advantage of better commercial terms as a result of increased competition, TransCanada indicated that it would be preferable to have the flexibility to change compressor specifications so that compressor units with ratings slightly different from those applied for could be ordered.

TransCanada was of the opinion that there is sufficient flexibility in the Board's standard conditions to allow variations to be made to the specifications without prior approval of the Board which requires an application. However, TransCanada requested that the Board confirm that TransCanada has the flexibility to select the most appropriate compressor package in the same nominal size range without having to seek and obtain approval from the Board.

The APMC noted that TransCanada had indicated that the proposal could result in TransCanada having to broaden its inventory holdings and that there could be an impact on the time spent on maintenance. As TransCanada had indicated that it had not conducted a cost-benefit analysis to establish whether the benefits associated with the requested flexibility would outweigh the potential additional costs associated with maintenance and greater inventory requirements, the APMC believed that it was premature to grant the confirmation sought by TransCanada.

Views of the Board

The Board is concerned with the possibility of increased inventory and maintenance costs related to the purchase of any compressor unit packages which are not commonly used on TransCanada's system. Therefore, the Board denies TransCanada's request to allow variations to be made to compressor unit specifications without prior approval of the Board. Should TransCanada consider

purchasing compressor packages with ratings which differ from those specified in the application, TransCanada shall provide the Board with a cost-benefit analysis demonstrating that the impacts associated with inventory and maintenance costs do not outweigh the savings it may realize at the time of the purchase.

Table 4-1**Description and Estimated Cost of the Applied-For Facilities****1994 Construction**

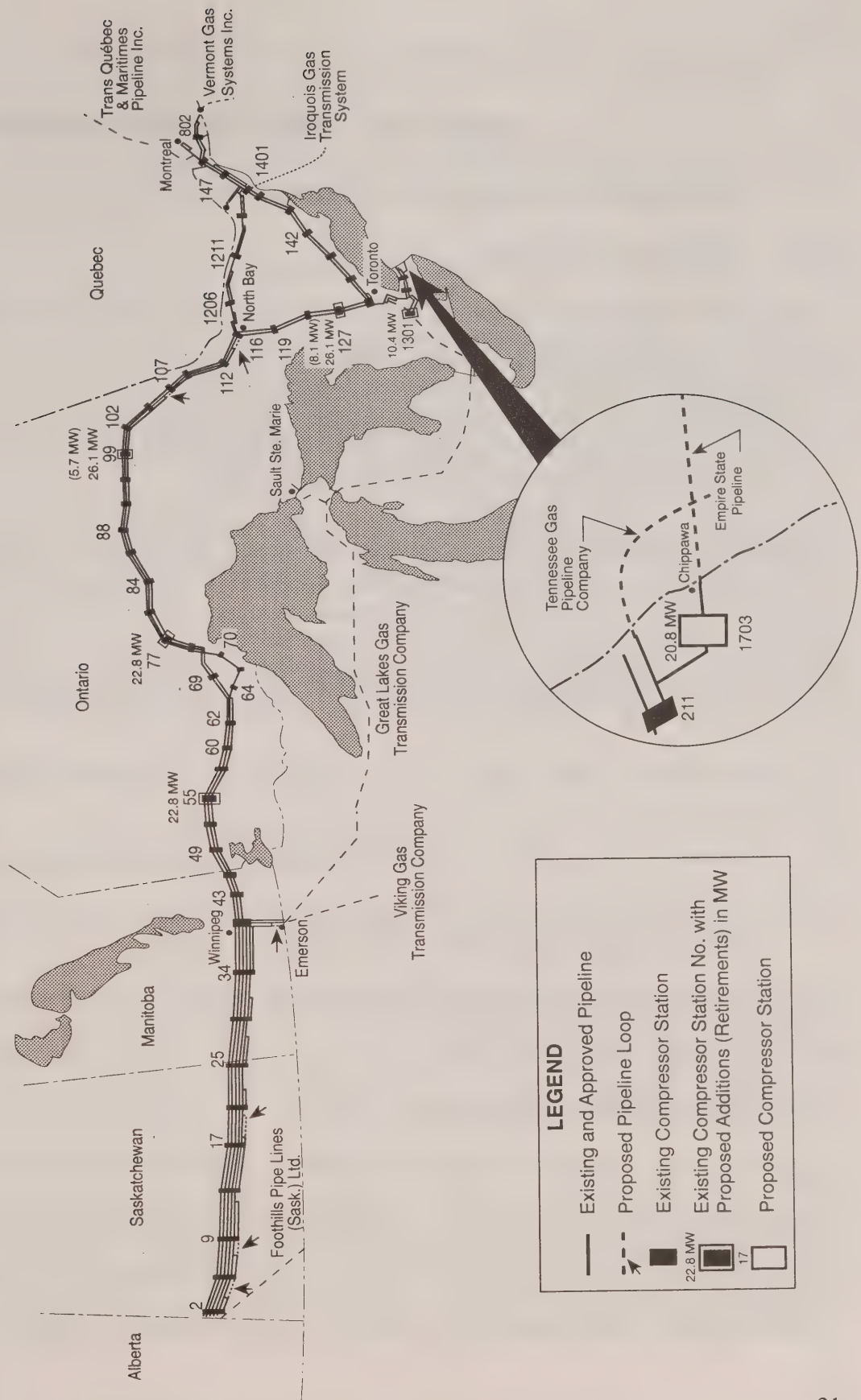
Line	Loop Description	Length (km)	Direct Cost (1993 base) (\$000)
Western Section			
100-6	MLV 3 + 4.9 km to MLV 4	24.7	22 084
100-6	MLV 4 to MLV 5	29.3	26 493
100-6	MLV 8 to MLV 9	26.2	22 324
100-6	MLV 19 to MLV 20	24.7	22 094
Emerson Extension			
400-3	MLV 403 to MLV 404	28.1	25 571
Central Section			
100-3	MLV 106A to MLV 107	9.9	14 654
100-3	MLV 115 to MLV 116	<u>21.5</u>	<u>28 958</u>
	Total Looping	164.4	162 178

**1993 Compressor Plant Additions
and Piping Modifications****Power****Direct Cost
(1993 base)
(\$000)**

Stations 55 and 77	2 x 22.8 MW (ISO)	48 371
Stations 99 and 127	2 x 26.1 MW (ISO)	54 017
Station 1301	10.4 MW (ISO), with aftercooler	22 484
Station 1703	2 x 10.4 MW (ISO), with aftercooler	46 003
Manifolding at Station 5		600
Manifolding at Station 116		1 884
Manifolding at Station 1703		948
11 Aero Assemblies		5 060
8 Spare Aero Assemblies		3 680
Standby Plants and Spares		<u>19 750</u>
Total Compressor Plant Additions and Piping Additions		202 797

Additional Metering Facilities	Direct Cost (1993 base) (\$000)
Potter Power Meter Station	414
Upgrade of two NPS 12 Meter Runs at Chippawa Meter Station	138
Addition of two new NPS 12 Meter Runs at Chippawa Meter Station	<u>718</u>
Total Additional Metering Facilities	<u>1 270</u>
Total Estimated Direct Costs of Facilities	366 245
Associated Indirect Costs	<u>31 037</u>
Total Estimated Capital Costs	397 282
Blackhorse Variation	
Upgrade of the Chippawa Meter Station Mainline Valve Assembly and of the pipe specification for the facilities located between the proposed Douglastown Compressor Station and the Chippawa Channel crossing of the Niagara River	87

Figure 4-1
TransCanada PipeLines Limited
Location of the Applied-for Facilities



Land Use and Environmental Matters

5.1 Assessment and Notification Process

5.1.1 Assessment Process

TransCanada submitted environmental and socio-economic assessment reports ("the assessments") in support of its application under covering letters dated 18 January, 23 March, 21 April and 5 May 1993. In addition, TransCanada adopted most of the recommendations contained in those assessments for the prevention or mitigation of any adverse environmental effects resulting from the construction and operation of the applied-for facilities. TransCanada also undertook to adhere to the policy statements, mitigative measures and procedures provided in its Pipeline Construction Specifications (1990) and Environmental Protection Practices Handbook (1991).

The assessments included a description of the environmental setting, an assessment of the probable adverse environmental effects of the proposal, and recommendations to prevent or mitigate any adverse environmental effects resulting from the applied-for facilities. An Environmental Issues List ("EIL"), which included the recommended practices and procedures to prevent or mitigate specific adverse environmental effects, was provided for each of the proposed pipeline loops. In general, the assessments provided information on land-use, soils, agricultural capability/productivity, vegetation, fisheries, wildlife, water crossings, forestry, heritage resources, recreation and environmentally sensitive areas.

The environmental and directly-related social effects of the project were considered concurrently under two separate processes:

- (i) a project review pursuant to the Board's mandate under Part III of the Act; and
- (ii) an environmental screening of the application pursuant to the *Environmental Assessment and Review Process Guidelines Order* ("EARP Guidelines Order").

The environmental screening was conducted concurrently with the GH-2-93 proceeding pursuant to the Board's Directions on Procedure dated 22 May 1992. The Board's environmental review pursuant to Part III of the Act is detailed in this chapter.

5.1.2 Early Public Notification

In accordance with the Board's Memorandum of Guidance Concerning Early Public Notification ("EPN") of Proposed Applications, TransCanada initiated its notification program in respect of the 1994/95 Facilities on 11 September 1992. Through this program, TransCanada solicited and encouraged public input on environmental and socio-economic effects, and responded to all public queries related to the proposed application. The information program included notifications placed in local newspapers, and correspondence with landowners, municipalities, provincial and federal government agencies and departments, provincial and federal elected officials, and various public

interest groups. A total of 63 notifications were placed in 87 different newspapers and 1595 individuals, organizations, and government agencies were contacted through written correspondence giving details of the proposed projects and requesting input.

The Board directed TransCanada to publish a Notice of Public Hearing in newspapers in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario and Quebec as set out in Appendix IV of the Board's Directions on Procedure.

As a result of the notification program and subsequent consultations, TransCanada received and responded to 156 inquiries by 22 March 1993.

TransCanada provided the Board with summary tables listing the letters received during the notification process. These tables included a statement summarizing the sender's concerns and any action TransCanada had taken in response to the letters and inquiries received. At the request of the Board, TransCanada filed copies of all letters received and the responses from TransCanada. The Board also requested an additional summary which provided greater detail regarding the concerns raised by government agencies and public interest groups. This summary included all environmental, land use or socio-economic recommendations or requirements of the above-mentioned agencies or groups, and provided explanations for any recommendations with which TransCanada did not agree. TransCanada updated this record at the commencement of the GH-2-93 hearing.

Views of the Board

The Board is satisfied that TransCanada has notified and discussed the proposed application in a timely fashion with government agencies, public interest groups and affected landowners.

5.1.3 Public Concerns

As a result of the EPN process for the 1994/95 Facilities Application, TransCanada was apprised of a number of concerns regarding the proposed application.

By a letter dated 5 April 1993, the Federal Department of Fisheries and Oceans ("DFO") advised the Board that it had concluded its initial assessment of TransCanada's proposal, pursuant to section 19 of the EARP Guidelines Order. DFO's review addressed fish and fish habitat related concerns and considered comments and recommendations from Manitoba Fisheries Branch and Saskatchewan Fisheries Branch. DFO recommended a number of conditions relating to suitable construction periods, erosion control, debris and temporary structures, hydrostatic testing and handling of fuel, lubricants and other hazardous products. Subject to the implementation of those conditions, DFO found that the potential adverse environmental effects to fish and fish habitat which may be caused by the applied-for facilities would be insignificant or mitigable with known technology. In a letter to the Board dated 14 July 1993, DFO revised the condition relating to hydrostatic testing.

By a letter dated 27 May 1993, the Canadian Wildlife Service ("CWS") of Environment Canada, Western and Northern Region, provided the Board with comments on TransCanada's proposal. These comments were submitted as specialist advice under section 19 of the EARP Guidelines Order and included comments by Conservation and Protection Agencies (Inland Waters, Environmental Protection and Canadian Wildlife Service) as well as by the Atmospheric Environment Service and the Canadian

Parks Service. In general, the comments related to weed control, spill of pollutants and migratory bird (waterfowl) habitat.

Saskatchewan Environment and Resource Management ("SERM") provided comments to TransCanada outlining a number of conditions relating to rare and endangered plant and wildlife surveys, reclamation plans, monitoring, fence removal, heritage resources and water works approvals.

Manitoba Natural Resources expressed concerns to TransCanada regarding erosion control, hydrostatic testing and sediment control measures. Manitoba Agriculture encouraged TransCanada to minimize easement widths, minimize adverse effects to soil and site permanent above-ground installations on field or property edges.

The Regional Municipality of Niagara expressed concerns to TransCanada regarding the proposed Douglastown Compressor Station site, specifically in relation to noise levels and additional visual screening with trees. The City of Niagara Falls encouraged TransCanada to utilize additional land around a station to create a noise buffer area; to continue to use the buffer land for agricultural purposes through lease-back agreements; to minimize noise levels through landscaping; and to minimize visual effects with the use of tree screening. The Niagara Falls Nature Club expressed concerns to TransCanada regarding noise levels and encouraged TransCanada to consider a policy of no net loss of trees and to allow natural regeneration of the land rather than returning it to farmland.

The Ontario Ministry of Natural Resources ("OMNR") expressed concerns to TransCanada regarding fisheries assessment reports, instream timing restrictions, mitigative measures for turbidity and siltation and instream placement of spoil piles. The Ontario Ministry of Agriculture and Food encouraged TransCanada, with respect to the proposed Douglastown Compressor Station, to choose a site that has the least amount of agricultural activity and to continue to rent or lease the balance of the lands for agriculture production.

Specific concerns were also raised by other municipal, provincial and federal government agencies. TransCanada undertook to provide updated information to the Board on the results of ongoing discussions with special interest groups and regulatory agencies as the project planning progresses.

5.2 Land Matters

5.2.1 Requirements in Respect of the Routing of New Pipeline Facilities

If the Board is satisfied with the proposed general route of a particular loop section of pipeline and issues a certificate in respect to it, the pipeline company must submit to the Board, prior to the commencement of construction, plans, profiles and books of reference ("PPBR") which, among other things, lay out the detailed route of the pipeline segment.

In its application, TransCanada requested that the applied-for facilities be exempted, pursuant to section 58 of the Act, from the provisions of paragraphs 31(c) and 31(d) and section 33 thereof. Such exemptions would relieve TransCanada from the necessity of filing a PPBR for Board approval.

Views of the Board

In deciding whether or not to exempt TransCanada from the provisions of paragraphs 31(c), 31(d) and section 33 of the Act, the Board is mindful of the rights of adjacent landowners¹ who might be affected by the proposed construction. The Board is of the opinion that due to the proposed location of the facilities (i.e., on existing easements or new easements adjacent thereto), it is unlikely that those landowners would be adversely affected in the long term by the proposed construction.

The Board is concerned that landowners whose property TransCanada proposes to acquire have their rights under the Act protected. However, the Board is also aware of the potential problems for TransCanada if it is unable to obtain all the necessary land rights. Therefore, the Board is prepared to grant the requested exemptions subject to the condition which will permit construction to commence only if TransCanada has obtained all required land rights along any specific loop section or, if the land rights have not yet been obtained, to demonstrate that the landowner rights prescribed in the Act will not be prejudiced. The Board is of the opinion that the wording in the proposed condition protects the rights of landowners while allowing TransCanada flexibility in instituting the right of entry process.

Decision

The Board will grant TransCanada exemption from the provisions of paragraphs 31(c) and 31(d) and section 33 of the Act subject to Exemption Order Condition 1 listed in Appendix III of these Reasons.

5.2.2 Route Selection

TransCanada has applied for a total of 164.4 km of line pipe, consisting of 7 loop sections in the Provinces of Saskatchewan, Manitoba and Ontario. The location, length and land requirements for each loop section are found in Table 5-1.

Where new facilities could not be located on existing easements due to easement width constraints, TransCanada proposed that they be located adjacent to the existing easements provided that environmental, engineering, construction and safety concerns were met. All proposed loop sections are adjacent to existing easements.

Views of the Board

The Board agrees with TransCanada's rationale for installing the proposed new looping facilities either within existing easements or adjacent to existing easements with associated temporary workspace. The general routes proposed by TransCanada for those loop sections are accepted by the Board.

¹ An adjacent landowner is one who owns property which is not along the proposed right-of-way but who finds that his or her property may be adversely affected by the applied-for facilities.

Table 5-1

**Land Requirements
TransCanada Proposed 1994/1995 Looping**

Loop Description	Loop Section	Length	Permanent Width	Easement Length	Temporary Width	Work Space Length
<u>1994 CONSTRUCTION</u>						
Saskatchewan 5th Loop						
MLV 3 + 4.9 km to MLV 4	Liebenthal	24.7	20.0	24.7	20.0	24.7
MLV 4 to MLV 5	Cabri	29.3	20.0	29.3	20.0	29.3
MLV 8 to MLV 9	Herbert	26.2	20.0	26.2	20.0	26.2
MLV 19 to MLV 20	Wolseley	24.7	20.0	24.7	20.0	24.7
Manitoba 2nd Loop Emerson Extension						
MLV 403 to MLV 404	Emerson Extension	28.1	10.0/20.0	28.1	20.0	28.1
Ontario 2nd Loop						
MLV 106A to MLV 107	Boston Creek	9.9	20.0/27.4	7.0	10.0	7.5
MLV 115 to MLV 116	Widdifield	21.5	20.0	16.8	10.0	5.9
TOTAL		164.4		156.8		146.4

5.2.3 Land Requirements and Notifications

5.2.3.1 Land Requirements

TransCanada provided the rationale for its specific land requirements and for each loop location, included schematics of said requirements.

Fee Simple

Compressor Station 77

TransCanada testified that it would be acquiring additional land in fee simple at Compressor Station 77 moving the property line further south. Since the property line will be further from the noise source,

measured noise levels at the new fence line will be lower than current levels. One parcel of approximately 10 hectares ("ha") is presently being negotiated with the OMNR.

Compressor Station 127

During cross-examination, TransCanada stated that additional lands would also be required at Compressor Station 127. The acquisition of new lands serves a two-fold purpose. The first is to allow for the installation of the proposed "B" plant and the second is to provide a buffer between the station and the other side of the property line. TransCanada has obtained an option to purchase approximately 2 ha at that station.

Easements

TransCanada provided the Board with schematics of the land requirements for each loop location. TransCanada requires easements ranging in width from 10.0 m to 27.4 m along the 7 proposed loop sections.

Temporary Work Space

TransCanada requires from 10.0 to 20.0 m of temporary work space for machinery movement, the storage of topsoil and subsoil, and to ensure that no environmental or landowner interests are compromised during construction. This is in accordance with TransCanada's Pipeline Construction Specifications (1990). Temporary work space in excess of 20.0 m is required in areas where adverse conditions exist. Such areas include wetland, rolling terrain and major river crossings.

5.2.3.2 Notifications

For the looping program proposed by TransCanada, approximately one hundred and fifty landowners as well as numerous individuals having interests in Crown lands are affected. TransCanada indicated that all owners were contacted, and it undertook to file a Line List which would indicate the status of land acquisition. TransCanada further indicated that in compliance with section 87 of the Act, it would serve a notice of proposed acquisition on each party holding an interest in any of the lands that it proposed to acquire.

Views of the Board

Because of the potential effects on affected landowners, the amount of land (fee simple, easements, temporary work space) required for pipeline construction is of concern to the Board. The Board finds that TransCanada's anticipated requirements for fee simple lands, easements and temporary work space are reasonable and justified. With respect to easements, the Board encourages TransCanada to serve section 87 notices of proposed acquisition on all eligible owners at the earliest opportunity. With respect to temporary work space, as long as TransCanada's acquisition of the same continues to be a short-term commercial transaction which does not create an interest in land, section 87 of the Act does not apply.

5.3 Environmental Matters

5.3.1 Pipeline Looping

In its application, TransCanada identified a number of environmental issues which could result from the pipeline construction. Those effects, and mitigative measures proposed by TransCanada, were presented in the assessments. Additional information was also requested and obtained by the Board regarding certain site-specific environmental effects and the mitigative measures proposed.

Vegetation

The construction of the proposed looping could lead to the loss of significant vegetation such as native prairie vegetation and/or rare or endangered vascular plants.

For certain sites in Saskatchewan and Manitoba with the potential for supporting rare or endangered species, detailed site-specific studies had not been completed as of the close of the GH-2-93 proceeding.

In order to complete those surveys, TransCanada proposed to have its Environmental Inspectors survey areas of high potential for rare and endangered plants on non-cultivated portions of the right-of-way and working space prior to construction. TransCanada also proposed to document any rare or endangered plants found by its Environmental Inspectors in the as-built reports, together with the mitigation action taken. TransCanada submitted that specialists in the field of plant ecology would be available to the inspectors should they be required.

With respect to Ontario, TransCanada indicated that no rare or endangered plant species or habitat exist along the loops.

For the Saskatchewan and Manitoba facilities, TransCanada's proposed seed mixes for native pasture are made up of native species which are known to occur in the general area. TransCanada indicated that, although it will ensure that Canada No. 1 seeds will be used, the recommended seed mixes and fertilizers as outlined in the assessment reports may be altered depending on the seed availability, landowner requests and suitability for the site conditions. TransCanada submitted that its standard construction procedures, including narrowing the work space to the maximum extent possible, will be undertaken in native pasture areas to minimize the extent of the disturbance.

Portions of the Liebenthal Loop (MLV 3 + 16.1 km to MLV 4) and the Cabri Loop (MLV 4 to MLV 4 + 10.1 km) traverse the Great Sand Hills of Saskatchewan, which is an area designated as Environmentally Sensitive by SERM. Those lands were formed by wind sculpted glacial sands resulting in sand dune terrain which exhibit significant local relief. This area is part of the Sand Hill Complex Ecodistrict. During the summer of 1993, TransCanada will retain consultants to develop specialized reclamation plans for the sand dune terrain crossed by the Liebenthal and Cabri Loops. On completion, TransCanada will review the Reclamation Plan with SERM. A report outlining the proposed reclamation plans will be prepared in the fall of 1993 and submitted to the Board in the early winter of 1993.

Facilities proposed in Ontario traverse areas where stands of merchantable timber occur. TransCanada indicated that, to the maximum extent possible, it will salvage merchantable timber in cooperation with the licensee and the OMNR. TransCanada indicated that timber cleared for pipeline construction will

be used for corduroy road construction or upgrading. TransCanada further indicated that it will dispose of slash by chipping or burning, or re-use it by spreading it on erosion-prone areas.

Soils and Agriculture

The proposed facilities cross agricultural lands in a number of areas throughout Saskatchewan, Manitoba and Ontario.

The primary concerns arising from pipeline construction through agricultural lands include possible conflicts with land use practices, loss of soil capability from soil mixing, soil loss through erosion, or loss of soil structure through compaction or pulverization. Saline subsoils found along portions of certain loops in Saskatchewan and Manitoba increase the concern regarding the mixing of subsoil with topsoil. Disturbance to native pasture is also an agricultural concern in Saskatchewan and Manitoba.

TransCanada's standard practices as set out in its Pipeline Construction Specifications (1990) and Environmental Protection Practices Handbook (1991) are designed to minimize conflicts with farming operations and to ensure soil conservation under normal pipeline construction. TransCanada proposed mitigation for the prevention of soil mixing in salt-affected soils. As noted above, TransCanada also proposed specific mitigative procedures to minimize disturbance in areas of native pasture.

With respect to cultivated land along the Liebenthal and Cabri Loops, weed control is a concern to both landowners and local government agencies. TransCanada indicated that, for all loops in Saskatchewan and Manitoba, it will minimize the potential for weed growth by keeping construction equipment clean and using appropriate seed mixes. Also, TransCanada will undertake weed control if excessive weed growth occurs on the right-of-way as a result of construction.

Wildlife

TransCanada's construction schedules for the applied-for facilities will avoid highly sensitive periods for wildlife use. TransCanada also proposed a number of measures to avoid or restore significant habitat areas.

The proposed facilities for Saskatchewan and Manitoba cross a number of areas which could support wildlife species with special conservation status (vulnerable, threatened and endangered species). The Great Sand Hills provide particularly good habitat for the western hognosed snake, bullsnake, loggerhead shrike and ferruginous hawk as these species inhabit dry, open prairie.

For certain sites in Saskatchewan and Manitoba with the potential for supporting rare and endangered wildlife species, detailed site-specific studies had not been completed as of the close of the GH-2-93 proceeding. In order to complete those surveys, TransCanada proposed to have its Environmental Inspectors survey areas of high potential for rare and endangered wildlife on non-cultivated portions of the right-of-way and working space, prior to construction. TransCanada also proposed to document any rare or endangered wildlife species or associated habitat found by its Environmental Inspectors in the as-built reports, together with the mitigation action taken. TransCanada submitted that its Environmental Inspectors would survey potential sites for rare and endangered wildlife as determined by the applicable government agency.

No wildlife species with special conservation status are known to occur in proximity to the proposed facilities in Ontario.

A number of the proposed facilities traverse lands supporting habitat for waterfowl in Saskatchewan, Manitoba and Ontario. TransCanada submitted that it will avoid the sensitive nesting time period for waterfowl from 1 April to 15 June. TransCanada indicated that the CWS appears to oppose any construction occurring prior to the third week in July. TransCanada acknowledged that nesting and re-nesting for several waterfowl species may extend beyond 15 June. During construction, TransCanada undertook to ensure that specialized habitat for waterfowl will be avoided, relocated or restored in consultation with CWS.

In Ontario, a number of moose concentration areas have been identified along or near the two proposed loops. The Boston Creek Loop also traverses a deer concentration area. TransCanada indicated that the early winter habitat traversed is extensive and should easily accommodate any moose displacement during pipeline construction. The permanent removal of forest habitat is insignificant relative to the extensive habitat available in the area. Preliminary discussions with OMNR indicate that special mitigative measures for the moose and deer concentration areas are not required.

In Saskatchewan, the portions of the Liebenthal and Cabri Loops that cross the Great Sand Hills traverse critical wildlife habitat for mule deer and sharp-tailed grouse. The right-of-way also passes immediately north of critical habitat for pronghorn antelope. In order to mitigate the potential environmental effects of pipeline construction on mule deer and pronghorn antelope, TransCanada will minimize the temporary work space, re-seed the right-of-way at a low rate to encourage the invasion of native vegetation, avoid construction in late winter to early spring and, where possible, permit low-growing shrubs to re-establish on the right-of-way. With respect to the critical habitat for sharp-tailed grouse, TransCanada will mitigate the potential environmental effects by avoiding active sharp-tailed grouse leks and nesting areas, reducing the temporary work space and recontouring the disturbed areas to maintain landform suitable for lekking grounds.

Watercourse Crossings and Fisheries

The proposed pipeline loops cross a number of watercourses which could be adversely affected by construction-related activities. These activities include clearing and grading, trenching, installation of flow diversions, back-filling, hydrostatic testing and related activities such as equipment maintenance and waste disposal. One of the most serious adverse environmental effects on fisheries could result from increased concentrations of sedimentation downstream of the crossing. With respect to fisheries, pipeline construction could result in the disturbance and loss of existing and potential fish habitat at the stream crossing points as well as downstream. Streambank erosion, sedimentation and toxic spills could decrease water quality and further reduce fish populations. TransCanada outlined a number of standard mitigative measures to be followed for all watercourse crossings in an effort to limit potential environmental effects associated with those crossings.

For the Ontario loops, TransCanada conducted and filed with the Board fisheries resource assessments detailing watercourse sensitivity. For the Manitoba loop, TransCanada provided information on watercourse sensitivities and timing restrictions. No watercourses with fisheries potential will be crossed in Saskatchewan.

TransCanada indicated that DFO and the provincial departments responsible for fisheries management were involved in an ongoing process of consultation and negotiation with TransCanada so as to identify and resolve various environmental issues related to the stream crossings. As discussed previously, after completing an environmental screening of the proposed facilities' effects on fish and fish habitat, DFO proposed several conditions to be included in any certificate issued to TransCanada. These conditions deal with suitable construction periods, erosion control, debris and temporary structures, hydrostatic testing and handling of fuel, lubricants and other hazardous products. Subject to the implementation of these conditions, DFO found that the potentially adverse environmental effects on fisheries which may be caused by the applied-for facilities would be insignificant or mitigable with known technology.

TransCanada agreed to all of DFO's recommendations with the exception of the proposed condition that water withdrawals for hydrostatic testing must not exceed 10 percent of the instantaneous flow of the source stream and the request that TransCanada apply the "Recommended Fish Protection Procedures for Stream Crossings in Manitoba" for all aspects of construction activities associated with water crossings. TransCanada indicated that this document is under review.

Subsequent to the close of the hearing, DFO revised its proposed condition regarding hydrostatic testing such that water withdrawal rates should not exceed 10 percent of the minimum mean monthly flow of the source stream and that in the event water withdrawal requirements exceed the recommended rate, TransCanada should be required to demonstrate that the impacts to fish or fish habitat will be insignificant.

The field surveys conducted by TransCanada confirm the presence of a number of streams with warm water and cold water fisheries in Ontario. TransCanada indicated that the effects on fisheries resources will be minimized by scheduling in-stream construction (including blasting) to avoid, to the maximum practical extent, the spawning, migration and development periods of fish species. TransCanada submitted that it will adhere to instream construction windows for both warm water and cold water streams. TransCanada indicated that, for some crossings where permanent alteration or loss of fish habitat may occur, a site-specific sediment control plan, and possibly an acceptable compensation plan, will need to be developed. For watercourse crossings requiring site-specific resolution with OMNR, TransCanada undertook to advise the Board of the construction schedule and make site-specific information regarding the crossing techniques available to the Board in the construction offices. TransCanada's undertakings to the Ontario Pipeline Coordination Committee ("OPCC") include, among other things, obtaining and adhering to OMNR authorizations, obtaining appropriate authorization from DFO where required, adhering to the Generic Sediment Control Plans and developing detailed Sediment Control Plans for "wet" crossings of watercourse where required.

Archaeological and Heritage Resources

TransCanada identified the need for heritage resources surveys and/or heritage resources impact assessments for a number of loops in Saskatchewan (Herbert, Wolseley and Liebenthal Loops), Manitoba (Emerson Loop) and Ontario (Widdifield Loop). TransCanada also identified a requirement to reassess one site (EdOg9) within the Cabri Loop in Saskatchewan. TransCanada indicated that the field surveys will be completed during the summer of 1993, with the final reports prepared during the fall. TransCanada undertook to provide the results in the final reports to the Board.

As outlined in TransCanada's Environmental Protection Practices Handbook (1991), where possible, known sites will be avoided, and in the event sites cannot be avoided, they will be excavated and evaluated prior to construction. In the event that archaeological sites or artifacts are discovered during construction, all construction activities at that location will cease until the proper authorities are notified and permission is granted to proceed with construction.

Views of the Board

The Board is satisfied with the environmental information provided by TransCanada with regard to the potential adverse environmental effects which may result from the construction and operation of the proposed facilities. With the exception of TransCanada's proposed rare and endangered plant and wildlife surveys and proposed variations with seed mixes, the Board is satisfied with TransCanada's proposed monitoring and mitigation measures.

With respect to TransCanada's proposal to file the results of the rare and endangered plant and wildlife surveys for Saskatchewan and Manitoba, along with the mitigation action taken, in the as-built reports, the Board wishes to examine these surveys prior to construction. Therefore, TransCanada will be required to file the results of the rare and endangered plant and wildlife surveys, including the methodology, dates and locations of the surveys, and any corresponding avoidance or mitigative measures, 10 days prior to the commencement of construction.

With respect to the proposed seed mixes, the Board also wishes to examine any variations prior to seeding, with the exception of those proposed by the landowners. Therefore, TransCanada will be required to file prior to seeding, any changes it proposes to the seed mixtures outlined in the assessment reports.

The Board will also require TransCanada to keep the Board informed by filing an update of the results of any discussions with special interest groups and regulatory agencies, detailing any site-specific mitigative measures and constraints that may affect the construction program. The Board is of the view that if TransCanada's proposed environmental protection measures, as well as those agreed to by TransCanada with all other regulatory agencies, are implemented, the environmental effects of the proposal would be insignificant or mitigable with known technology. Should TransCanada's application be approved, the Board will condition the certificate so as to ensure adherence to those measures and undertakings and to ensure that unresolved issues are adequately addressed prior to construction.

5.3.2 Upgraded Stations

TransCanada proposes to install one additional compressor at each of stations 55, 77 and 1301 and to provide additional compression at stations 99 and 127 to replace the power lost due to compressor retirements and to provide increased capacity. An aftercooler will be installed with the new compressor unit at station 1301.

Noise Levels

TransCanada submitted that the final maximum noise level at the property line is not to exceed the higher of 50 dBA or the existing noise level (without the additional compression). This will be

achieved by utilizing the following design measures: silencers on the turbine exhaust and combustion air intake; acoustically insulated piping; acoustically treated buildings; and silencers sized to eliminate any pure tones.

TransCanada undertook to file a monitoring report which will include the actual noise levels at the three closest residences and details of any complaints received, TransCanada's response and the resulting status of the complaint.

Air Quality

The air contaminants of primary concern with respect to the addition of compression are oxides of nitrogen ("NO_x"). In order to promote the reduction of NO_x emissions, the Canadian Council of Ministers of the Environment published in December 1992 National Emission Guidelines for Stationary Gas Turbines. TransCanada indicated that as part of its efforts to meet these more stringent emission guidelines, it plans to install compressor units which will incorporate "dry, low NO_x" ("DLN") combustors. TransCanada noted that this technology is expected to be available in 1993 for small compressor units in the 10 MW range and in 1994/95 for large units (greater than 20 MW). TransCanada has indicated that there may be a delay between the construction of certain proposed units and their conversion to DLN combustors.

TransCanada indicated that the highest one-hour average off-property concentrations of NO_x for the proposed compressor units are predicted to be below the federal maximum acceptable objective, with or without DLN. TransCanada, therefore, has submitted that there will be no negative health effects caused by the NO_x emissions from the proposed station upgrades. It is not anticipated that the long-term federal NO_x objectives will be exceeded with the operation of the upgraded stations.

With respect to source NO_x emissions, TransCanada indicated that it does not intend to monitor NO_x emission rates as they are guaranteed to be in compliance with the National Emission Guidelines' requirements, pursuant to the manufacturer's contract. TransCanada submitted that source NO_x emission tests will be carried out after the commissioning of the units to demonstrate that the guaranteed emission levels are being met.

Views of the Board

The Board is satisfied with the environmental information provided by TransCanada with regard to the potential adverse environmental effects which may result from the addition of compressors at various stations and the replacement of compressors at two stations. The Board supports the application of the National Emission Guidelines for Stationary Gas Turbines and commends TransCanada for its proposed prompt incorporation of DLN technology. The Board is of the view that TransCanada should file with the Board the results of the source NO_x emission tests, ensuring compliance with the National Emission Guidelines for Stationary Gas Turbines.

The Board is satisfied with TransCanada's proposed monitoring and mitigation measures. The Board will require TransCanada to keep the Board informed by filing an update of the results of any discussions with special interest groups and regulatory agencies, detailing any site-specific mitigative measures and constraints that may affect the construction program. The Board is of the view that if TransCanada's proposed environmental protection measures, as well as those agreed to by

TransCanada with all other regulatory agencies, are implemented, the environmental effects of the proposal would be insignificant or mitigable with known technology. Should TransCanada's application be approved, the Board would condition the certificate so as to ensure adherence to those measures and undertakings and to ensure that unresolved issues are adequately addressed prior to construction.

5.4 Douglastown Compressor Station

5.4.1 Site Selection Criteria

The evidence put forward by TransCanada reveals that a number of criteria were used by TransCanada in the site selection process. The criteria established for identifying the potential locations for the Douglastown Compressor Station set out the fundamental attributes that a location must have to support a compressor station. They encompass locational and spatial requirements which reflect, among other items, technical and environmental considerations including existing and future land use. The criteria developed and applied by TransCanada are set out in Appendix II.

Views of the Board

Any company proposing to construct facilities is free, at the outset, to utilize whatever criteria it considers appropriate under the circumstances for its site selection. The Board must then determine whether the criteria selected are acceptable or whether important elements have been omitted. The Board's task, as well as the task of those interested parties who may wish to challenge the criteria, is plainly made much easier if a uniform set of criteria is applied on a consistent basis. Nevertheless, if in the final analysis a set of relevant and reasonably complete criteria emerge, the requirements of the Board will have been satisfied.

The Board finds the criteria identified by TransCanada to be acceptable for the purpose of site selection.

5.4.2 Site Selection Process

TransCanada's site selection process is based on a three-phase screening applied systematically at progressive levels of detail. At each level of evaluation, potential sites were either eliminated or accepted for further evaluation based on the above-noted set of criteria.

The approach to site selection for the Douglastown Compressor Station was an iterative process carried out by a multi-disciplinary team consisting of TransCanada's environmental, engineering and right-of-way staff augmented by its consulting team of environmental specialists.

The objective of the first phase was to identify all potential locations for the station that would be viable from an environmental (including socio-economic), technical (engineering design and construction), cost and land acquisition standpoint, and to establish the major advantages and disadvantages of each. During Phase 1 of the site selection process, five potential locations for the Douglastown Compressor were identified (Figure 5.1).

The objective of the Phase 2 evaluation was to compare the five potential compressor station locations by evaluating their relative performance in terms of the criteria used to identify them in Phase 1, and against an added set of attributes listed in Appendix II as Phase 2 criteria. The purpose of this process was to identify the three top ranking sites for further detailed site evaluation and discussion with provincial agencies, municipalities, interest groups and landowners. Once the properties were evaluated and assigned values for each impact category, the values were multiplied by the respective parameter weighting (i.e. 3, 2 or 1). All values for each site were then totalled, and the three sites with the highest scores were retained for detailed alternative site evaluations. Sites 1, 2 and 4 were the three locations with the highest overall ranking, receiving scores of 31, 48 and 36, respectively.

The objective of Phase 3 of the evaluation was to conduct an even more detailed assessment and comparison of each remaining site with the intent of selecting the preferred site. TransCanada re-evaluated the three sites based on in-depth, site-specific field surveys and included contacts with provincial and municipal agencies, interest groups and landowners through correspondence, telephone discussions, meetings and a local information centre.

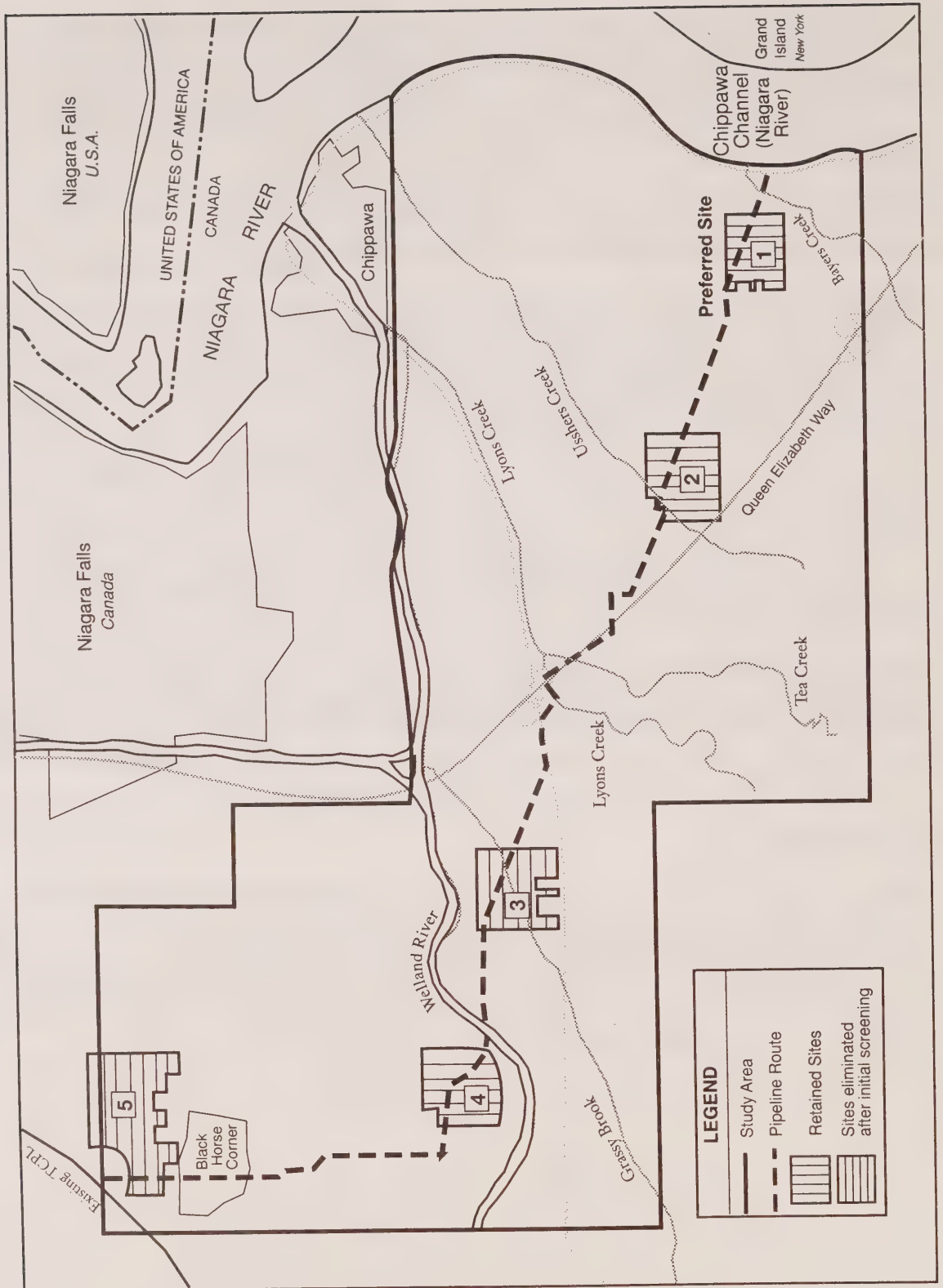
TransCanada indicated that this in-depth evaluation resulted in Site 2 being determined as the location that overall best met the environmental site-selection criteria for the Douglastown Compressor Station followed closely by Site 1 and Site 4 in that order. TransCanada indicated that when landowner and cost considerations were included in the analysis, Site 4 was eliminated from further consideration, and Site 1 was selected as the preferred site for the Douglastown Compressor Station because of substantive cost advantages.

TransCanada indicated that, during the Phase 3 site comparison, the disadvantages of Site 1 in the Phase 2 criteria were less pronounced than had been anticipated during the initial screening and that these disadvantages could be eliminated by applying reasonable mitigation. TransCanada has further indicated that Sites 1 and 2 were acceptable to agencies, interest groups and landowners. TransCanada, therefore, selected Site 1 on the basis of cost savings.

Views of the Board

The Board accepts that TransCanada has selected the proposed site from a reasonable set of alternatives. Although TransCanada did not select the site that overall best met the environmental criteria, the Board finds that TransCanada on balance chose an acceptable site. The Board accepts TransCanada's reasons for not choosing the site that overall best met the environmental criteria and is of the view that, in choosing Site 1, TransCanada has not jeopardized its environmental criteria. The Board, therefore, finds that the criteria for, and process of, site selection are satisfactory.

Figure 5-1
**Douglastown Compressor
 Station Sites**



5.4.3 Land Matters

The ability to acquire the parcels of land for the proposed Douglastown Compressor Station through negotiation was a major concern during the site selection process. TransCanada adjusted the property boundaries where possible to exclude individual residences or residential lots and commercial or institutional properties.

There are five landowners from whom lands will need to be acquired at Site 1. TransCanada indicated that section 87 notices have been served and "Options to Purchase" have been obtained on all of the lands.

Views of the Board

The Board notes that TransCanada has obtained options on all of the necessary lands.

5.4.4 Environmental Matters

Site 1 is located along the Blackhorse Extension between kilometre post ("kp") 17 and kp 17 + 0.9 km. The property to be purchased is bounded by the unopened Willoughby Drive road allowance to the east and Sodom Road to the west, while the northern and southern limits are south of Detenbeck Road and north of Sherk Road, respectively. The property includes one dwelling and a business operation (the maintenance warehouse and parking area for the Niagara double-decker tour buses). There are also several residences in the immediate surrounding area: eight along Sodom Road, one along Bossert Road, and one along Detenbeck Road.

Vegetation

Forest vegetation covers 34 percent of the property, agricultural fields (corn, hay and old field) 50 percent, and a conifer plantation, 12 percent. The remainder of the property is residential, road and commercial. The actual plant site area, however, consists of 80 percent agricultural fields and 20 percent conifer plantation.

Approximately 1.8 ha of conifer plantation will be permanently removed to construct the compressor station. TransCanada indicated that this plantation is about 25 years old and has not been actively managed during the recent past; many of the trees are crowded and show poor growth.

The proposed property incorporates two Environmentally Sensitive Areas ("ESAs") and one significant woodlot. TransCanada submitted that contacts and correspondence with agencies such as the OMNR, the Regional Municipality of Niagara, the City of Niagara Falls, the Niagara Peninsula Conservation Authority, the Niagara Falls Nature Club and the Peninsula Field Naturalists did not raise any concerns with, or objections to, the inclusion of municipally-designated ESAs and the significant woodlot within the property boundaries as long as the plant site did not encroach on those areas. TransCanada submitted that the ESAs and significant woodlot are beyond the fenced plant area and are not crossed by the access road to the compressor station.

The salvaging of any merchantable timber and the disposal of slash through chipping or removal to an appropriate location will ensure that there are no brush piles deposited in sensitive areas nor any related fire hazards or drainage problems.

Agriculture

Approximately 5.0 ha of the hay field and 0.2 ha of the corn field will be taken out of production to accommodate the fenced plant site area. TransCanada submitted that other surrounding lands, including those on the property, will not have their agricultural capabilities affected by the construction and operation of the facility.

Wildlife

TransCanada submitted that no specific concentrations of wildlife are known at the selected site, nor were any found during field observations. Further, no rare or endangered wildlife species, including any associated habitat, are present at the site.

Fisheries

A tributary of Usshers Creek crosses the northwest side of the property and collects drainage from the northwest half of the property. Both resident and migratory components of the warm water fish community utilize this watercourse. OMNR indicated that there is potential for the presence of the regionally rare grass pickerel. TransCanada indicated that the plant site is approximately 400 m (at the nearest point) from this watercourse and runoff from the site has negligible potential for creating any sediment loading or effects to fisheries.

Visual Effects

TransCanada indicated that visual screening of the station is expected to be good, but plant facilities may be partially visible to some of the residents along Sodom Road and Bossert Road and from the residence on Detenbeck Road. TransCanada further indicated that it will remove mature woody vegetation only to the degree necessary to accommodate the fenced plant site and will leave in place the vegetative buffer on the parts of the property outside the fenced area. TransCanada undertook to file with the Board a copy of the landscape plan for the Douglastown Compressor Station, including the plans for the replacement of trees, prior to construction.

Land Use

Site 1 is currently zoned as Rural. TransCanada submitted that discussions with the City of Niagara planning officials indicate that changing the zoning to industrial at this location will not pose a problem.

TransCanada indicated that the tour bus operation located on the site property is the only commercial land use within one kilometre which may be affected by the proposed station. TransCanada also indicated that it has expressed a willingness to negotiate an agreement with the owner of this facility to allow this operation to co-exist with the compressor station as it is not within the fenced plant site.

Archaeological and Heritage Resources

TransCanada identified the need for an archaeological survey of the Douglastown Compressor Station site. TransCanada indicated that this survey will be carried out for the lands to be affected by the proposed facility, which includes the fenced plant site and the access road.

Noise Levels

TransCanada indicated that the new station will be designed to ensure that within 30 m of an occupied area, in any hour, the equivalent sound level will not exceed the ninetieth percentile² sound level of the natural environment at the property line. TransCanada further indicated that the Douglastown Compressor Station will be designed to comply with relevant guidelines and, therefore, there will be no adverse noise effects due to the new station. The design techniques to be used to limit the noise level include silencers on the turbine exhaust and combustion air intake; acoustically treated buildings; acoustically insulated piping; and a buffer zone around the proposed facility.

TransCanada indicated that the anticipated noise level at the property line will not exceed 38 dB(A). TransCanada submitted that the natural vegetation on and along the south section of the property and, to a lesser degree, that on the east and northwest sections, will attenuate some of the noise in those directions.

TransCanada undertook to file a monitoring report which will include the actual noise levels at the three closest residences and details of any complaints received, TransCanada's response and the resulting status of the complaint.

Air Quality

The air contaminants of primary concern with respect to the operation of the Douglastown Compressor Station are oxides of nitrogen. TransCanada will be installing two 10.4 MW compressor units which will be equipped with DLN combustors.

TransCanada indicated that the highest one-hour average off-property concentrations of NO_x for the proposed compressor units are predicted to be below the federal maximum acceptable objective. TransCanada, therefore, has submitted that there will be no negative health effects caused by the NO_x emissions from the proposed station. It is not anticipated that the long-term federal NO_x objectives will be exceeded with the operation of the new compressor station.

With respect to source NO_x emissions, TransCanada indicated that it does not intend to monitor NO_x emission rates as they are guaranteed to be in compliance with the National Emission Guidelines' requirements, pursuant to the manufacturer's contract. TransCanada submitted that source NO_x emission tests will be carried out after the commissioning of the units to demonstrate that the guaranteed emission levels are being met.

²

The ninetieth percentile (L₉₀) is the level of sound that is exceeded 90 percent of the time. It is an indication of the ambient sound level.

Views of the Board

The Board is satisfied with the environmental information provided by TransCanada with regard to the potential adverse environmental effects which may result from the construction and operation of the proposed compressor station and is satisfied with TransCanada's proposed monitoring and mitigation measures, with the exception of TransCanada's decision not to monitor NO_x emission levels. The Board is of the view that TransCanada should provide the ambient NO_x emission level (micrograms per cubic metre) three months after the commencement of operation, to ensure that targets are being met. This monitoring will also confirm the reliability of the dispersion model used by TransCanada to predict the new ambient NO_x emission levels at compressor stations with new units. The Board is of the view that TransCanada should file with the Board the results of the source NO_x emission tests ensuring that the new compressors comply with the National Emission Guidelines. The Board will also require TransCanada to keep the Board informed by filing an update of the results of any discussions with special interest groups and regulatory agencies, detailing any site-specific mitigative measures and constraints that may affect the construction program.

The Board is of the view that if TransCanada's proposed environmental protection measures, as well as those agreed to by TransCanada with all other regulatory agencies, are implemented, the environmental effects of the proposal would be insignificant or mitigable with known technology. Should TransCanada's application be approved, the Board will condition the certificate so as to ensure adherence to those measures and undertakings and to ensure that unresolved issues are adequately addressed prior to construction.

Views of the Board - Summary

On the basis of its examination of the information contained in TransCanada's application and the evidence adduced during the hearing, the Board finds that the potentially adverse environmental effects that may be caused by the applied-for facilities and the social effects directly related to those environmental effects are insignificant or mitigable with known technology. This conclusion is subject to the implementation of the environmental protection measures proposed by TransCanada as well as those agreed to by TransCanada with other regulatory agencies and subject to the conditions the Board will impose in any certificate it may issue.

The Board is satisfied with TransCanada's early public notification program. The Board notes that TransCanada has addressed most of the public concerns raised during the course of the program in an effective manner. With respect to the few outstanding issues, the Board will require TransCanada to file with the Board prior to the commencement of construction an update to the summary detailing the results of discussions with appropriate interest groups and regulatory agencies which was provided during the proceeding.

Retirement of Compressors

In its application, TransCanada proposed to retire two Orenda compressor units during 1995 as part of an ongoing program to retire Orenda compressor units. The proposed units are the Station 99 portable unit 9002 and the Station 127 "A" Plant unit. TransCanada provided the following reasons for the retirement of these units: the Orenda gas turbine is obsolete and no longer manufactured; spares are available from the manufacturer but only by special order; the fuel efficiency is only 18 percent compared to 33 percent or more for modern gas turbines; and the NO_x emissions from the Orenda unit are 196 ppmv at 15 percent O₂, compared to 42 ppmv at 15 percent O₂ for modern gas turbines. In addition, TransCanada noted that unit 9002 generates a high level of noise.

Both the Station 127 "A" Plant compressor unit and the portable compressor unit 9002 at Station 99 will be approximately 30 years old when they are retired in 1995. The unit at Station 127 is substantially depreciated, while the portable unit at Station 99 is slightly more than 50 percent depreciated. The higher net book value of the portable unit is a result of relocation costs that have been charged to it each time the unit has been relocated.

TransCanada applied to the Board for approval to treat the retirement of both compressor units as "ordinary retirements" pursuant to section 39 of the *Gas Pipeline Uniform Accounting Regulations* ("GPUAR").

Views of the Board

The Board accepts TransCanada's rationale for retiring the compressor units at Stations 99 and 127. In this regard, the Board believes that the retirement of these units falls within the guidelines set out under section 39 of the GPUAR.

Decision

The retirement of compressor units 9002 and 127 "A" may be treated as "ordinary retirements" pursuant to section 39 of the GPUAR.

Economic Feasibility

The Board examines the economic feasibility of facilities by assessing the likelihood that the facilities will be used at a reasonable level over their economic life, and by determining whether the demand charges will be paid. In the course of its examination, the Board considers several factors, and TransCanada submitted evidence addressing each of these factors.

TransCanada submitted a report by Sproule Associates Limited which finds that there will likely be a sufficient long-term supply of gas to keep the pipeline utilized at a reasonable level over its economic life.

TransCanada has projected that Eastern Canadian natural gas demand will grow at an average rate of 1.9 percent per year from 1992 to 2010, primarily driven by power generation requirements, and that projected gas demand exceeds the current projected contracts for deliveries through TransCanada's system.

To demonstrate the long-term nature of natural gas demand in the U.S. Northeast and Midwest, TransCanada relied on six current demand projections provided by the Gas Research Institute ("GRI"), The American Gas Association, The WEFA Group ("WEFA"), The National Petroleum Council, the Department of Energy/Energy Information Administration and Enron Corporation. TransCanada indicated that the Midwest market is projected to grow at minimal rates of between 0.0 percent and 1.0 percent per annum and that the Northeast market is projected to grow between 0.8 percent and 1.3 percent per annum between 1995 and 2010. TransCanada stated that the increases in demand for all its market sectors were spearheaded by the industrial and electric power generation sectors. However, TransCanada pointed out that a proceeding before the NYPSC regarding NIMO's petition for non-utility generation ("NUG") curtailment procedures could impact natural gas demand in NUG applications in the short-term. TransCanada also described a number of potential pipeline projects in New England which target incremental LDC loads and Clean Air Act driven power plant conversions from coal to natural gas. Notwithstanding the regulatory and market uncertainties outlined in the evidence, TransCanada concluded that there will be a continuing need for natural gas in the markets that it serves.

In its evidence, TransCanada provided an overview of the pipelines which compete with TransCanada in the Eastern Canadian market, and indicated that because of the more competitive environment that has developed in the transportation of natural gas throughout North America, there are no assurances that TransCanada will continue to serve all renewing and incremental markets in Eastern Canada. However, TransCanada cited the fact that new and existing customers continue to enter into long-term contracts as an indication that its transportation services are competitive.

With respect to the potential competition to natural gas supplies delivered by its system, TransCanada pointed to its own forecast of domestic Eastern Canadian end-use demand and the GRI and WEFA demand projections of the U.S. Midwest and Northeast which indicate that natural gas will maintain or increase its market share through the forecast period.

TransCanada and its expansion shippers provided evidence indicating that, for the new transportation contracts underpinning the expansion the transportation demand charges will be paid; there is adequate gas supply; upstream and downstream transportation arrangements are or will be in place; and all regulatory approvals have or will be obtained. They also provided evidence with respect to the regulatory risk associated with the implementation of FERC Order 636 and the proceeding before the NYPSC regarding NIMO's petition for NUG curtailment procedures.

The proposed facilities are expected to increase the cost of gas delivered to Eastern Canadian markets by \$0.004 per gigajoule from the approved toll for 1993 and \$0.012 per gigajoule from the projections made during the GH-4-92 proceeding. TransCanada indicated that the bulk of this increase is related to the construction of facilities required to meet increased seasonal requirements net of the proposed new services. TransCanada stated that in an ever-increasing competitive environment, any toll increase would be adverse, but based upon recent history and projected increases in the price of natural gas, the impact of the toll increase is not likely to be material.

Views of the Board

The Board is satisfied that the evidence demonstrates that the proposed expansion is economically feasible, given that there is long-term gas supply, a long-term domestic and export market, a strong likelihood that the facilities will be used at reasonable levels over their economic life and that demand charges will be paid. The Board is satisfied that the certificate conditions described in Chapters 3 and 4 will adequately ensure that all necessary transportation service contracts, gas supply contracts and regulatory approvals will be in place prior to the commencement of construction of the approved facilities. In addition to the evidence on the new transportation services supporting the expansion, the Board notes evidence of continued increases in the demand for natural gas forecast in TransCanada's market areas, and the active assignment and diversion markets for firm service, and believes that these factors indicate that TransCanada's facilities will continue to be used at a high level. The Board also notes that no evidence was presented to suggest that despite the increasing competition between pipelines, TransCanada would not continue to be a competitive supplier of transportation services to these markets.

Disposition

The foregoing Chapters constitute our Decisions and Reasons for Decision in respect of the application heard before the Board in the GH-2-93 proceedings. The Board has found that the proposed facilities are required by the present and future public convenience and necessity. Therefore, the Board will recommend to the Governor-in-Council that a certificate be issued. The certificate will be subject to the conditions outlined in Appendix III.

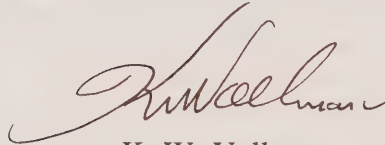
Upon issuance of a certificate, the Board will exempt the facilities, pursuant to section 58 of the Act, from paragraphs 31(c) and 31(d) and section 33 of the Act subject to the exemption order condition outlined in Appendix III.



A. Côté-Verhaaf
Presiding Member



C. Bélanger
Member



K. W. Vollman
Member

Calgary, Alberta
September 1993

List of Issues

ECONOMIC FEASIBILITY

1. The likelihood of the facilities being used at a reasonable level over their economic life and a determination of the likelihood of the demand charges being paid, having regard to, *inter alia*:
 - (a) evidence that there is likely to be a sufficient long-term supply of gas to keep the pipeline fully utilized over its economic life;
 - (b) evidence on the long-term outlook for gas demand in the market region to be served;
 - (c) evidence on the potential competition to gas supplies delivered via TransCanada's system from:
 - (i) competing supplies of natural gas;
 - (ii) competing energy sources; and
 - (iii) competing gas transportation systems;
 - (d) evidence on the individual gas contracts underpinning the expansion, including:
 - (i) evidence that the demand charges will be paid;
 - (ii) evidence as to the adequacy of project-specific supply for the proposed expansion;
 - (iii) evidence that adequate gas transportation arrangements exist or will exist both upstream and downstream from the TransCanada system;
 - (iv) evidence that all appropriate regulatory approvals in both Canada and the United States will be in place prior to construction of the new facilities; and
 - (v) evidence on the financial integrity of the parties to the individual gas contracts underpinning the facilities expansion;
 - (e) the risks associated with the new gas sales, including regulatory risks in all other jurisdictions, allowing for the nature of the market and any previous experience with the market; and
 - (f) the likelihood of a toll increase caused by the expansion resulting in reduced demand for firm service on the system.

TECHNICAL ISSUES

2. The appropriate design of the proposed facilities and the consistency of that design with the long-term requirements.
3. The appropriate capability factors used in TransCanada's design calculations.

ENVIRONMENTAL ISSUES

4. The potential environmental effects of the proposed facilities and associated transportation services, and the social effects directly related to those environmental effects.
5. The appropriateness of the location of the proposed looping and facilities in light of emerging urban growth and land use patterns.

TERMS AND CONDITIONS

6. The appropriate terms and conditions to be included in any certificate or order that may be issued.

TOLL ISSUES

7. Whether TransCanada should be given approval to enter into assignments of two Union M12 transportation contracts.
8. Whether the retirement of the compressor units at Stations 127 and 99 should be treated as "ordinary" under the *Gas Pipeline Uniform Accounting Regulations* ("GPUAR").

Criteria for Compressor Station Site Selection

Phase 1 - Identification of potential compressor station locations

- A. The site must have sufficient land area required for the compressor station.
- B. The site must be along the Board-approved Blackhorse Extension route alignment.
- C. The location must be adjacent to the Blackhorse Extension, with no existing utility corridors between the proposed compressor station and the Blackhorse Extension pipeline.
- D. The plant site shall avoid wetland, watercourses and associated floodplain, mature woodlot, non-mitigable archaeological areas and designated environmentally sensitive areas.
- E. The location should minimize impact on lands where there is existing or proposed development.

Phase 2 - Initial screening of all potential locations (weighting)

- A. Potential for noise impact to off-property residents and other sensitive receptors. (3)
- B. Potential for visual impact to off-property residents or residential areas. (3)
- C. Potential for the displacement of residences and businesses through property acquisition. (3)
- D. Potential for impact to farmland. (3)
- E. Constructability. (2)
- F. Proximity to the Niagara River. (2)
- G. Site access. (1)
- H. Access to power. (1)
- I. Industrial zoning. (1)

Phase 3 - Detailed evaluation of alternative sites and selection of the preferred site

- A. Detailed on-site information.
- B. The ability to purchase the land.
- C. Cost of land, pipeline and compressors for each site.
- D. Inputs from reviewing agencies, interest groups and area residents.

Certificate Conditions

1. The pipeline facilities in respect of which this certificate is issued shall be the property of and shall be operated by TransCanada.
2.
 - (a) TransCanada shall cause the approved facilities to be designed, manufactured, located, constructed and installed in accordance with those specifications, drawings and other information or data set forth in its application, or as otherwise adduced in evidence before the Board, except as varied in accordance with subsection (b) hereof.
 - (b) TransCanada shall cause no variation to be made to the specifications, drawings or other information or data referred to in subsection (a) without the prior approval of the Board.
3. Unless the Board otherwise directs, TransCanada shall implement or cause to be implemented all of the policies, practices, recommendations and procedures for the protection of the environment included in or referred to in its application, its environmental reports filed as part of its application, its Pipeline Construction Specifications (1990), its Environmental Protection Practices Handbook (1991), its undertakings made to DFO and the OPCC, or as otherwise adduced in evidence before the Board in the GH-2-93 proceeding.

Prior to Commencement of Construction

4. TransCanada shall, at least 10 days prior to the commencement of construction of the approved facilities, file with the Board a detailed construction schedule or schedules identifying major construction activities and shall notify the Board of any modifications to the schedule or schedules as they occur.
5. TransCanada shall file with the Board, 10 working days, excluding Saturday, Sunday and holidays, prior to the commencement of construction:
 - (a) the results of the heritage resources surveys referred to in the application, including any corresponding avoidance or mitigative measures;

- (b) the results of the rare and endangered vascular plants surveys, referred to in the application, including the methodology, dates and locations of the surveys, and any corresponding avoidance or mitigative measures; and
 - (c) the results of the rare and endangered wildlife species surveys, referred to in the application and in the GH-2-93 proceeding, including the methodology, dates and locations of the surveys and any corresponding avoidance or mitigative measures.
- 6. TransCanada shall, prior to the commencement of construction, file with the Board copies of any provincial permits or authorizations which contain environmental conditions for the applied-for facilities as well as maintaining an information file(s) in the construction office(s) which would include any changes made in the field, and permits obtained following the commencement of construction.
- 7. TransCanada shall, prior to the commencement of construction, file with the Board, an update of the summary detailing the results of discussions with all appropriate special interest groups and regulatory agencies; and maintain an information file(s) in the construction office(s) which includes:
 - (a) a detailed listing of all site-specific mitigative measures to be employed as a result of undertakings to special interest groups or regulatory agencies; and
 - (b) an explanation of any constraints identified that may affect the construction program.
- 8. TransCanada shall, prior to the commencement of construction:
 - (a) serve the Heritage Resource Surveys on the Governments of Manitoba, Saskatchewan and Ontario;
 - (b) seek the opinion of each provincial government described in sub-clause (a) above concerning the acceptability or non-acceptability of the Heritage Resource Surveys; and
 - (c) advise the Board of the respective opinions of each provincial government described in sub-clause (a) above, or of the Applicant's inability to obtain an oral or written opinion from one or more of the provincial governments described in sub-clause (a) above.
- 9. Unless the Board otherwise directs, TransCanada shall, at least 10 working days prior to the commencement of construction of the Liebenthal and Cabri Loops, file with the Board the Reclamation Plan for the Great Sand Hills, including the comments received

from Saskatchewan Environment and Resource Management regarding the Reclamation Plan.

10. Unless the Board otherwise directs, TransCanada shall, at least 10 working days prior to the commencement of construction of the Douglastown Compressor Station, file with the Board a copy of the landscape plan for the Douglastown Compressor Station, including the plans for replacement of trees.
11. Unless the Board otherwise directs, TransCanada shall, prior to the commencement of construction of the approved facilities, demonstrate to the Board's satisfaction that:
 - (a) in respect of new firm export volumes, all necessary United States and Canadian federal regulatory approvals, including applicable long-term Canadian export authorizations, have been granted; and
 - (b) with respect to the transportation services of new firm volumes on the TransCanada system:
 - (i) transportation contracts have been executed;
 - (ii) all necessary United States and Canadian regulatory approvals have been granted in respect of any necessary downstream facilities or transportation services; and
 - (iii) gas supply contracts have been executed.
12. TransCanada shall file with the Board, at least 10 days prior to the commencement of construction, RG&E's gas supply contracts underpinning the incremental 1 558 10³m³/d (55 MMcfd) of contracted transportation service on TransCanada.
13. Unless the Board otherwise directs, TransCanada shall, prior to the commencement of construction of any of the approved facilities, submit for Board approval:
 - (a) requirements tables in the same format as Tables 2, 3 and 5 of Subtab 1 under the Tab "Requirements" of Exhibit B-1 from the GH-2-93 proceeding, showing the base case requirements and those requirements for which Condition 11 has been satisfied;
 - (b) flow schematics of the TransCanada system demonstrating that those approved facilities which are to be released for construction are necessary to transport the requirements referred to in subsection (a);

- (c) an assessment, prepared in consultation with TransCanada's shippers, of the impact of Federal Energy Regulatory Commission Order No. 636 upon TransCanada's base case requirements and upon those requirements for which Condition 11 has been satisfied; and
- (d) an assessment, prepared in consultation with TransCanada's shippers of the New York State Public Service Commission proceeding under the Public Utility Regulatory Policies Act Regulations regarding Niagara Mohawk Power Corporation's petition for non-utility generation curtailment procedures upon TransCanada's base case requirements and upon those requirements for which Condition 11 has been satisfied.

During Construction

- 14. Unless the Board otherwise directs, TransCanada shall, during construction, ensure that specialized habitat for wildlife and plants with a designated status and all raptors will be avoided, relocated or restored in consultation with appropriate regulatory agencies.
- 15. Unless the Board otherwise directs, TransCanada shall, during construction, ensure that specialized habitat for waterfowl will be avoided, relocated or restored in consultation with the Canadian Wildlife Service.
- 16. Unless the Board otherwise directs, TransCanada shall file with the Board, prior to seeding, any variations in the recommended seed mixes as outlined in the assessment reports, unless these changes are requested by the landowner.
- 17. TransCanada shall, during construction, file with the Board monthly construction progress and cost reports, in a format to be determined through consultation with Board staff, providing a breakdown, by location and facility, of costs incurred during that month, the percentage of each activity which has been completed and an update of costs to complete the project.
- 18. TransCanada shall, during construction, maintain for audit purposes at each construction site, a copy of the welding procedures and non-destructive testing procedures used on the project together with all supporting documentation.

Post Construction

19. TransCanada shall, following construction, provide the Board with an estimate indicating how much merchantable versus non-merchantable timber was used for corduroy or erosion control purposes.
20. TransCanada shall, within six months of putting the additional facilities into service, file with the Board a report providing a breakdown of the costs incurred in the construction of the additional facilities, in the format used in Schedules 3 through 18 of subtab 10 under Tab "Facilities" of Exhibit B-1 to the GH-2-93 proceeding, setting forth actual versus estimated costs, including reasons for significant differences from estimates.
21.
 - (a) TransCanada shall file with the Board a post-construction environmental report within six months of the date that the last leave to open for each loop is granted for the additional facilities.
 - (b) The post-construction environmental report referred to in subsection (a) shall set out the environmental issues that have arisen up to the date on which the report is filed and shall:
 - (i) indicate the issues resolved and those unresolved;
 - (ii) describe the measures TransCanada proposes to take in respect of the unresolved issues; and
 - (iii) provide detailed monitoring of the following items:
 - monitoring of the effectiveness of the reclamation program in areas of native pasture, including any recommendations for future reclamation programs;
 - monitoring, and summary of the locations of and reasons for, any topsoil overstripping and a discussion of the positive or negative effects of this activity;
 - testing of topsoil and subsoil for changes in salinity and sodicity in areas that are suspected of having vegetation affected by saline soils; and
 - a summary of the extent to which seeding with cover crops including rhizomatous grasses was undertaken, and an indication of whether any of the species have persisted beyond the intended period of establishment.

- (c) TransCanada shall file with the Board, on or before the 31 December that follows each of the first two complete growing seasons after the post-construction environmental report referred to in subsection (b) is filed:
 - (i) a list of the environmental issues indicated as unresolved in the report and any that have arisen since the report was filed; and
 - (ii) a description of the measures TransCanada proposes to take in respect of any unresolved environmental issue.

During Operations

- 22. Unless the Board otherwise directs, TransCanada shall, 1 month after the commencement of operation for the new compressor station and upgraded stations, file with the Board the results of the source NO_x emission (commissioning) tests indicating whether the compressor units are in compliance with the National Emission Guidelines for Stationary Gas Turbines.
- 23. Unless the Board otherwise directs, TransCanada shall, 3 months after the commencement of operation for the new compressor station and upgraded stations, file with the Board, a monitoring report for the said station, which details the results of an appropriate monitoring program. This report should include, but not be limited to:
 - (i) the noise emission levels at the source, the fence line and the three closest residences at the maximum operating level;
 - (ii) for the Douglastown Compressor station, the ambient NO_x emission level (micrograms per cubic metre) at the maximum operating capacity of the compressor station; and
 - (iii) any comments or complaints received as a result of station operations, how they have been addressed and whether the complainant is now satisfied.

Expiration of Certificate

- 24. Unless the Board otherwise directs prior to 31 December 1995, this certificate shall expire on 31 December 1995 unless the construction and installation with respect to each of the additional facilities has commenced by that date.

EXEMPTION ORDER CONDITION

1. TransCanada, prior to the commencement of construction of any specific loop section referred to in this Order, except as provided in subsection (b), shall:
 - (a) demonstrate to the satisfaction of the Board that all required land rights have been obtained along the entire loop section; and
 - (b) in the event that all required land rights have not been acquired within a specific loop section referred to in this Order, any portion or portions thereof may be constructed provided that, prior to commencing construction on any portion or portions of the loop section, TransCanada shall demonstrate to the satisfaction of the Board, that the rights, as prescribed in the Act, of the landowners, along the portion or portions of the loop section for which TransCanada has not yet obtained the required land rights, will not be prejudiced by the construction of the portion or portions of the loop section.

